# DESIGNING SCHOOLS FROM THE INSIDE OUT

JAMES CLARKE



## We're publishing this edition of Designing Schools from the Inside Out in 2017 as we feel it serves as a useful backdrop to what we're doing with Learniture<sup>®</sup> and why.

So much within education has changed in the last ten years as teachers grapple with the opportunities ICT brings to the classroom. But it's not just about that: it's about recognising that individual students study in different ways and questioning whether a single static environment to serve all learning activities is now an outdated concept as teachers instead seek to create environments that truly support what's going on in them. So we felt it was worth reminding ourselves of some of what went on towards the end of the UK's BSF programme and how it impacted on us as furniture manufacturers.

#### Designing schools from the inside out

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#### PREFACE

I started to write this pamphlet during the midst of the UK's *Building Schools for the Future* programme, launched in 2003 by the then Labour led government. I never felt fully comfortable with it – considering that too much emphasis was placed on the creation of glass palaces – "merely backdrops" I once rather cynically commented "for photographs of grinning politicians" – and insufficient on the creation of interiors which supported teaching and learning. But, following the general election of May 2010 and the removal of the Labour government by a coalition of its Conservative and Liberal opponents, the new Education Secretary, Michael Gove axed the programme in an act of such brutality, many who had become involved in the delivery of it and yet who shared concerns, were, nonetheless still left reeling.

But I was an eternal optimist: the glass is half full, not half empty. Perhaps, I felt, that this represented an opportunity to redress the balance. It took me back to a Friday, two years earlier, during the autumn of 2008, when I had taken some visitors from Holland (who were involved in furnishing educational environments there) around two schools in the UK. In the morning to what Alastair Campbell would once have called a 'bog standard' comprehensive<sup>1</sup> – albeit one in a prosperous market town, and in the afternoon to a year-old city academy. "Never before", they said at the end of the day "had they seen such two extremes: neither school would have existed in Holland."

Parents of the students of the comprehensive would, if it had been in Holland, have been queuing up to withdraw them first thing on Monday morning if they'd witnessed the environment in which they were being taught, they said.

<sup>&</sup>lt;sup>1</sup> "the day of the bog standard comprehensive school is over" during press briefing by Alastair Campbell, 13 February 2001

Students in the brand new academy, on the other hand, were surrounded by riches the like of which they had never seen before

This observation had brought me up short. My own son attended the comprehensive and I was, then, a governor there. What / had seen that day was, albeit hideously under-invested (the school's budget allowed just £8 per student per year, for example, to spend on furniture and equipment) an environment which was calm and in which there was pride (no litter, no graffiti, flowers in brick planters in the playground). Students all appeared on task, and without exception were polite and courteous to the group of visitors going around their school. The school was, and remains over-subscribed and still has excellent results both at GCSE and A Level putting it then in the top three schools in the county<sup>2</sup>. Checking the academy's results a couple of years later, on the other hand, showed below national average results at GCSE (the Academy does not have a Sixth Form)<sup>3</sup> and their students' attainment remaining "unsatisfactory"<sup>4</sup>.

Was this evidence that my previously firmly-held belief that environments have an effect on learning outcomes was ill-founded? Was I derelict in my duty both as a parent and a governor in allowing the comprehensive school to continue in the way it did? Or was it, in words that became linked with the American elections of that year, proof that you can put lipstick on a pig – but it's still a pig?

 $<sup>^2</sup>$  Lord Williams's School, Thame – 2008 GCSE results, 78% 5 passes A  $\bigstar$  to C

<sup>&</sup>lt;sup>3</sup> Samworth Enterprise Academy, Leicester - 2008 GCSE results, 41% 5 passes A★ to C (Nationally 46.5%);

<sup>&</sup>lt;sup>4</sup> Ofsted inspection 23<sup>rd</sup> to 24<sup>th</sup> September 2009 page 6 of 14 ~ Pupils' achievement and the extent to which they enjoy their learning

Regrettably, despite much soul-searching, I could conclude little: even with the publication of metrics – numbers by which parents are theoretically able to compare schools, it is difficult to usefully contrast the two establishments – they serve different communities and have different leaders and teachers. But my conviction of the need to continue rebuilding and remodelling our schools was strengthened. Whilst it is impossible to argue that we must concentrate first on areas of greatest need, and I had long resigned myself to the realisation that the process in which I was so closely involved professionally would have little or no effect on my own son, perhaps I had become too accepting of the poor state in which we have allowed our nation's school estate to fall. The need to get major capital projects right was as important then as at any time in history, and I felt that we'd not been doing that. The time had come to do it differently.

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#### INTRODUCTION

In 1773 when Thomas Pritchard designed the world's first bridge to be constructed from iron and built near Telford in Shropshire, in many instances he used woodworking joints – mortise and tenon and blind dovetails rather than bolts and rivets to connect components. We're now risking allowing history to repeat itself – relying on known methods and processes to solve new and different issues, but in this instance, those presented by various national governments' priorities to address their schools infrastructure. For the UK's Building Schools for the Future programme (2003 to 2010), the clue was in the name, and the process was therefore designed to deliver buildings, bid for by builders, bound by a series of regulations known as "Building Bulletins" (BB98 and BB99), and which were designed, as well as reviewed, by architects. But schools aren't just buildings. Schools are spaces in which learning takes place, and creating environments that support, or even create opportunities for learning relies on the complex interplay of contrasting influences.

The difficulty with what had become the status quo was perfectly illustrated during a meeting I found myself sitting in on during the late stages of a BSF bid. Packed into a cramped and stuffy, windowless meeting room one Friday afternoon, the consultant landscape architect presented a detailed planting plan for the proposed school. Quercus Robur Fastigiata and Prunus Calleryana Chanticleer would characterise the boundary with the street, whilst great swathes of Buxus Sempervirens were planned for the student entrance. But the project hadn't yet considered furniture at all – whether enough desks could be fitted in the organic room shapes. Whether whatever layouts that were possible supported a changing curriculum (row upon row of tables facing a teacher at the front was, and remains largely derided as appropriate in *every* classroom). Whether anything but the cheapest chair – the thing that

the students would come into daily physical bodily contact with – could be specified within the 'affordability envelope' (BSF, like most initiatives, spawned its own quango-speak).

When Henry Ford was asked about the Model T in 1908, he admitted that if, before designing it, he'd asked his customers what they wanted, they would have simply asked for faster horses. And yet the process of designing schools for the future – our future – professed to know the answer to the question



before it's poised. At the time of writing, BB98 still determines what will happen in a UK secondary school before the process starts: general teaching classrooms of 56m<sup>2</sup>, science laboratories of 90m<sup>2</sup> and resistance materials workshops of 112m<sup>2</sup>. Although a series of "area trades" were frequently negotiated between the school and the architect, and whilst Beech Williamson, the bulletin's author, and subsequently head of design at Partnerships for Schools<sup>5</sup> complained that it was being misused - simply becoming a vehicle to determine the building's size and therefore funding, and not read from "the front"<sup>6</sup>, the result was that the nett internal area (NIA) was determined from the outset.

<sup>5</sup> Partnerships for Schools is the non-governmental organisation responsible for delivering the Academies and Building Schools for the Future programme <sup>6</sup> http://future.ncsl.org.uk/News.aspx?ID=112 We knew the size of the building before we started. The person who was asked for directions and retorted "I wouldn't have started from here" would have found himself at home within BSF! Because where we found ourselves was in a position whereby too much emphasis was placed on the bricks and mortar of a school, and insufficient on the link (both physically and emotionally) between this structure, the ICT and the pupil, namely what goes in it. This was because most who were involved in the delivery of the project were solely interested in buildings. In many instances, from their perspective, interiors were simply an add-on – a nice-to-have which helped win the bid and a demonstration that they were willing to go the extra mile, but came nowhere near the construction in rank of importance and which you could be forgiven for thinking were considered best left to someone they either considered a glorified furniture salesman or quasi interior designer.

The average British student is seated for 15,000 hours during their school career<sup>7</sup>. Together with the table on which they write, after the teacher surely nothing else comes close to having this impact. Yet even in light of this, we still spend as little as £15 on a chair that we expect to last 10 years. A typical 'new build' project of £18-£20 million would allocate about 8% to furniture and equipment (F&E). Of this, a maximum of 10-12%, and often less – sometimes as little as £750 per room, would be used to furnish general teaching classrooms. That's significantly less than 1% of the overall budget even though this accounts for 60%+ of where a child spends a school day. A MORI poll in 2007<sup>8</sup> questioned how the school's investment in furniture compared with the

<sup>&</sup>lt;sup>7</sup> Lavent Caglar - Senior Ergonomist at the Furniture Industry Research Association.

<sup>&</sup>lt;sup>8</sup> Commissioned by Isis Concepts Limited, the poll asked "Between June 2007 and September 2007, how much in total (per child) do you think you spent to fully equip your child with all school essentials such as stationery, text books, sports kit, uniform, footwear, coats and bags?" Average expenditure was £94 against £14, according to BESA, spent per pupil per year on school furniture.

parents' investment in equipment (uniform, PE kit, stationery etc) and found that the school spent less than 15% of what they require parents to. I even found one school who charged £15 a year to rent a locker space – which had cost the school about £40 to provide (meaning after 3 years, they were making a nett profit). We've had water-bottle campaigns about hydration aiding concentration, not to mention Jamie Oliver's full-frontal attack on school dinners<sup>9</sup>; and yet, at the time of writing (and I'm doing so sitting in a £290 fully-adjustable, ergonomically-designed office chair) we remain comfortable (if that's not an oxymoron) about spending little more than £1 a year on a school chair that we expect to support our children's body. Ty Goddard <sup>10</sup> refered to the situation we had found ourselves in as a "turkey twizzler moment" – when the realisation dawns on us that we're allowing our children to sit on utter crap<sup>11</sup>.

Having trained as a furniture designer, and spent over 20 years in its specification, naturally I think that furniture affects the success of an interior. I now believe it will be one of the most critical factors in achieving transformation in teaching and learning, right up there next to Information Technology – way above the building itself, and certainly landscaping or the school's aesthetic impact on the neighbourhood. I'm well aware that this view could be met with a similar retort to that given by Mandy Rice-Davis when questioned during Stephen Ward's trial in 1963<sup>12</sup>. But a building is nothing but

<sup>&</sup>lt;sup>9</sup> http://www.jamieoliver.com/school-dinners/my-manifesto

<sup>&</sup>lt;sup>10</sup> Chair of the British Council for School Environments 2006-11.

<sup>&</sup>lt;sup>11</sup> Turkey Twizzlers, processed foods used by many school dinner services, and which contain just 34%

Turkey (plus water, pork fat, rusk, coating etc) became vilified following them being featured on "Jamie's School Dinners", Channel 4, spring 2005

<sup>&</sup>lt;sup>12</sup> "Well 'e would [say that] wouldn't 'e?" Mandy Rice Davis' retort to Lord Astor's claim that he had never had a relationship with her during trail of Stephen Ward at the Old Bailey, the culmination of the "Profumo Affair".

an empty shell without furniture. Without even the most rudimentary tables and chairs, teachers would find it difficult to make a classroom function. Furniture is therefore a prerequisite to making buildings, schools. Futurelab, the NCSL and education commentator Merlin John agree: "Elite architects might choke on the thought, but the money spent on settings is likely to have more effect on learning than the shells of the building, however innovative they might be."<sup>13</sup>

This isn't trying to make the simple, complex, although it might be acknowledging that the process of designing a school *is* complex. But this text does seek to create a different order: its aim is to determine a new way to design spaces in which whole communities can come together to expand their horizons. And I believe that should start with the most important component of the whole exercise: the student.

 $<sup>^{\</sup>rm 13}$  All on board for an IKEA of learning spaces?

http://www.futurelab.org.uk/resources/publications-reports-articles/web-articles/Web-Article1224

### WHAT'S WRONG WITH THE STATUS QUO?

I wouldn't be the first to suggest that the problem with Building Schools for the Future was including the word "building" in the title. Nor to question the perceived order in which these projects take place. And here's why:

"We feel it's something that's happening to us rather than something in which we are involved" was how one Headteacher described the rebuilding programme that was going on in his playground. We had just visited the nearcomplete building, viewing built-in beech-effect laminate cupboards and workbenches installed by the builder's nominated furniture contractor. "We didn't want them", he complained "but we were too late to stop it happening. There was an allowance in the contractor's budget for fixed furniture and this is what we've got" Another head, a few miles away asked why white plastic three-compartment trunking containing power and data had been installed three feet from the floor - and therefore just above the level of the worksurface, only to be told "we *always* put it there". "Yes" she retorted, "and just at eye level, my students *always* flick the switches off. You've no idea how much work we've lost that way". But this too was too late. Schools were making compromise after compromise because they'd either not been asked what they wanted, or were asked when they didn't (or couldn't) know the answer. Asking anyone how many sockets they want in a classroom as almost the first question when putting together a design brief (and well before they've fully thought through their IT strategy) won't give any meaningful response. "You know what's different" said the headteacher at the end of our meeting "is that you're listening to me". Everyone else she had met during the process of rebuilding her school had, she felt, barked instructions at her about how they were going to do it. A couple of weeks later, whilst visiting a school from which to take inspiration, the teachers explained that they had been firmly instructed "no more changes of mind". "We're not changing our minds"

they lamented, "we're making them for the first time, now we know what's



possible and therefore what we want. Up until now, it's just been the Authority".

A different day, and several hundred miles away, finds me sitting in on a BSF bid meeting. A 5am start, followed by an 8am pre-meeting then progressed into the meeting proper, the first two hours of which was spent discussing how a fresh-air vent could be routed under the foundations of the school into

the new 'street' design that will never be built. My sarcastic comment, to a director of the construction company (that was leading the bid) that this had been a fascinating start to the day was met with "and now you know how we feel when you start talking about furniture". When the meeting did eventually progress onto F&E, our allotted time was fully taken up with discussions on (a) how many square metres of pinboard should be specified, (b) whether it should be upholstered or painted (heaven forbid a racy solution such as linoleum!) and (c) whether it should be framed or un-framed. The builder successfully kept the conversation where he felt comfortable and the authority convinced itself it was paying close attention to the detail. Pinboard provision was, after all, something that had been dear to my heart since an analysis of another BSF bid showed that it had been proposed to spend three times as much on pinboards in a school than was being proposed to spend on chairs! But voicing my concern to the lead contractor over this, then, was simply met with the simple retort "you don't understand". Which was, at least

on one level, true. I did, however, understand how it had happened. The school had included pinboards in the list of things they wanted in their new school, but had also to say how many they wanted. My strong suspicion is that the individual concerned simply looked around the room in which they were sitting and said "a couple down that wall, the same opposite, and one at the back: put me down for 5" not for a second understanding the ramifications of that simple statement.

Myf Powell of RM presented a concept at RM's *Future Learning Spaces* exhibition in which I was involved, and which coincided with BETT in January 2009. During this she complained that both IT and furniture were poor relations within the BSF process. There is a 9-stage process employed by architects in the design and construction of a building: RIBA<sup>14</sup> stages A to K (there is also stage L relating to occupation and post-occupancy review). Typically, what will go into the building is not considered in detail not until stage F<sup>15</sup>. Myf argued that how a building would ultimately be used should help form the strategic design brief, and this used to refine and develop the solution. But this fell on deaf ears round the corner at Partnerships for Schools (PfS).

And this was even though PfS's Chief Executive Tim Byles had, at the first PfS Design Conference, two months earlier, accepted that "it's not just the building themselves – but the furniture and equipment inside them – that truly transforms the teaching and learning experience.". As a result, he said, PfS had "deliberately separated Furniture and Equipment from buildings and grounds

<sup>&</sup>lt;sup>14</sup> The Royal Institute of British Architects

<sup>&</sup>lt;sup>15</sup> F2 Preparation of further information for construction required under the building contract. Review of information provided by specialists

in the new draft Output Specification template, to emphasise the importance F&E can play in providing an agile environment suitable for personalised learning." But the first draft of the proposed specification contained little that was new. It didn't take long before the weasel words "area data sheet" crept in. Paragraph 2.1.1(d) stated "Layouts should correspond with the F & E listed on area data sheets both in terms of quantity and size." Area data sheets, for the uninitiated, list, line-by-line everything that has to be accommodated within an area. They are the self same forms that had dictated 5 pinboards per room in an earlier BSF bid. And a handy example was included on PfS's website<sup>16</sup> (this is for a general classroom):

Wall mounted spur shelving (2000 x 300 unit)	2
Bag storage and coat peg facility (mobile)	
Filing cabinet (four-drawer)	2
Full height bookcase	2
Half height cupboard with shelves	1
Half height cupboard with trays	1
OHP trolley	
Pupil chair	
Pupil table 1200x600 (sitting height)	15
Teacher's chair	
Teacher's desk/workstation (1600 x 800)	
Wastepaper bin	

So this became a process of ticking boxes whereas it ought to have been

<sup>&</sup>lt;sup>16</sup> http://www.partnershipsforschools.org.uk/library/bsf\_standard\_docs.jsp#OutputSpecification Volume 2 OutputSpecVolume2Annex2\_AreaDataSheets\_July08\_draft.xls as at March 2009

about thinking outside them. It required schools to determine – right down to the number of wastepaper bins – a shopping list of pinboards, clocks and the like before any of the consultants have put pen to paper. Not only does the process presume that schools know the entire marketplace – everything that is available to them – right at the beginning of a process of transformation, it stifles the creativity of those seeking to engage with them in creating new spaces to support teaching and learning. And that's ignoring the irony inherent in that the example on P4S's website suggested a general classroom, delivering transformation in education in the twenty-first century should include an overhead projector trolley!

It's not as if attempts haven't been made to challenge this process. One school with whom we had been working over a period of a number of years had got to the top of the BSF pile, and was one of the sample schools included in their Authority's bid process. Their Business Manager had been asked to compile area data sheets and had asked our advice. I pleaded with him to give an output specification rather than a data sheet – something, having visited RM's *Future Learning Spaces* exhibition he felt able to do. It read as follows:

#### The use and function of the room is to:

- Be suitable for a minimum of 30 students and 3 staff
- Enable physically and sensory impaired students full access to the curriculum
- Be agile and capable of change within any session without detracting from the learning experience
- Facilitate the delivery of the curriculum in a variety of ways/settings The furniture and fittings are to:

- Enable staff to deliver the curriculum using a variety of means/settings;
- Facilitate the creation of a 'dynamic' and not a 'static' environment, i.e. it must allow staff the opportunity to change the dynamics of the space as required without impacting on the learning experience
- Allow students access to the curriculum regardless of physical and/or sensory impairment
- Enable the storage of:
  - Personal belongings (Staff secure)
  - Personal belongings (Student clothes/bag)
  - Curriculum resources
  - Student work
- Enable staff to display student work throughout the space
- Provide a designated point of reference for staff
- Facilitate recycling of paper/appropriate waste disposal
- Facilitate the use of IT equipment (see ICT infrastructure)
- Include suitable level of contrast with the background, e.g. small space to contrast with the walls, large space to contrast with the ceiling
- Facilitate community use through excellence in ergonomic design the environment, furniture, fittings and equipment
- Enable staff and students to determine the time throughout the day
- Incorporate materials that are durable, easy to clean and maintain, i.e. capture advances in material science and thus extend the 'life cycle' period

Needless to say, what was to me a clear and thought-provoking brief was refused. The Quantity Surveyor complained that he couldn't cost it, even though the Department for Children Schools and Family budgets F&E for Single School Pathfinder BSF projects at £1,125 per pupil. So we knew how much we had available to meet that brief. Add to this, it would be difficult to argue that the original process had succeeded in delivering transformational environments in which to learn. Price Waterhouse Cooper's second annual report into BSF accepted that "there were some surprisingly low levels of agreement on whether the new teaching spaces were flexible and adaptable (34% of teachers in School A, 48% in School D and 52% in School C)"<sup>17</sup> whilst the students who had been interviewed agreed - only 56% (School A) 33% (School B) and 26% (School C) felt that there was less disruption in class because the new classrooms are better designed. In their widely-reported publication, Assessing Secondary School Design Quality, CABE<sup>18</sup> complained that "It is clear that there are not enough schools being built or being designed that are exemplary, inspiring, innovative, or flexibly designed to allow for a diversity of approaches to education in the future". They went on: "In several cases the message about transformational design is getting lost in a procurement process that is more concerned with cost and time."<sup>19</sup>. It could be argued that BSF was proof of the adage that "Design and Build is fine for those who know precisely what they want, but are not too particular as to what they get". Only many schools didn't yet know what they wanted.

So, keen to discover more how schools were responding to the delivery of teaching and learning, two teachers who worked in an authority that was shortly to embark on its BSF programme conducted a number of school visits outside their LA, photographing what they saw. The images were to be shown

<sup>&</sup>lt;sup>17</sup> Department for Children, Schools and Families Evaluation of Building Schools for the Future - 2nd Annual Report Final report (December 2008) Paragraph 7.13 (Page 75)

<sup>&</sup>lt;sup>18</sup> The Commission for Architecture and the Built Environment: the government's advisor on architecture, urban design and public space

<sup>&</sup>lt;sup>19</sup> Research Report published 2 July 2006

to the Authority's BSF team, who would, in turn, be asked to identify what they would change in a BSF school. Only afterwards did the teachers intend to disclose that the photographs were *of* BSF schools. "Apart from the wide street in the middle" complained one of them "everything else was the same [as the schools they replaced]. All the classrooms were the same – row upon row of desks facing the front. They could have had Food Technology rooms that looked like restaurant kitchens, and just think what you could do with an Art Room. But these too were just the same". But the sting in the tail came later: neither the BSF team, nor the consultants who were advising them, were interested in seeing the presentation, or to visit the revolutionary teaching spaces they had created, even though they were situated in the City Learning Centre not only in the same road, but directly opposite the council offices.

Millions of pounds were spent on BSF, both directly from the public purse, or via the government's version of hire purchase, PFI. Thousands of yards of concrete were poured, and acres of glass fitted across new atria. But the programme remained largely derided by teachers and governors who feel it is heavy on rhetoric and light on substance. Adrian Leeman of the Useable Buildings Trust<sup>20</sup> complained "You don't need flashy design statements. You just need boring things that work" <sup>21</sup>. And I believe those boring things start inside: they're the tables and chairs on which the students sit.

<sup>&</sup>lt;sup>20</sup> A charity, Useable Buildings Trust promotes better buildings through the more effective use of feedback on how they actually work.

<sup>&</sup>lt;sup>21</sup> BBC Radio 4 Costing the Earth, Monday 26 January 2009

# 2 HOW WE LEARN

When I started researching this, I imagined that the result would be a straightforward sequential argument. That I would document how we learn, translate this into interior solutions, and conclude with some case studies all wrapped around my belief that it's what we put into educational buildings, rather than the buildings themselves, which is important in supporting teaching and learning.

But this would have been a very "left brain" approach. As early as 1658, Pascal differentiated between "the mathematical and the intuitive mind"22 differences later proven by Nobel laureate psycho-biologist, Roger Sperry who determined that the cerebral cortex within the left and right hemispheres of the brain have different functions. In the 1940s, neurosurgeon William Van Wagenen was treating 10 epileptic patients who were suffering with intractable grand mal seizures. As part of their treatment he had severed the corpus callosum (the longitudinal fissure that connects the right and left hemispheres of the brain). Recognising the unique opportunity these patients presented in having two non-linked halves of the brain, Sperry devised a series of tests: he initially showed each patient pairs of different images (a spoon and a knife), only one of which was visible in each eye, and then asked them what they saw. In every case they answered with what they saw in their right eye - or left brain (nerves entering the brain cross over, meaning the left hand side of the brain controls the right hand side of the body). He then asked the patients to reach over to a table and *select* what they saw, without looking. Now in every case they selected the opposite of what they had said, in other words what their left eye - or right brain - had seen. Sperry concluded that the left hand side of the brain, (previously referred to as the

<sup>&</sup>lt;sup>22</sup> Pascal, B (1658) On the Geometrical Mind; De l'Esprit geometrique

dominant brain) tended to be analytical (scientific) whilst the right hand side bound with intuition (artistic). He later commented: "... there appear to be two modes of thinking, verbal and nonverbal, represented rather separately in left and right hemispheres respectively and that our education system, as well as science in general, tends to neglect the nonverbal form of intellect. What it comes down to is that modern society discriminates against the right hemisphere".<sup>23</sup>

Added to this, Elkhonon Goldberg, clinical professor of neurology at New York School of Medicine suggested<sup>24</sup> that the left hemisphere assumes a greater role and becomes more robust with age, and since, suggests the American Association of School Administrators in a feature in The School Administrator magazine <sup>25</sup> "schools are run by older people who know the answers, and the students are young people who want to explore the challenges. Schools thus often teach students the answers to questions they haven't yet asked, that don't engage them emotionally."

And, in a series of talks given by Sir Ken Robinson to coincide with the publication of his book *The Element* in 2009, he argued that our education systems continue to discriminate against the right hemisphere and this manifests itself in a hierarchy of subjects: maths, english and the sciences at the top; music, art and drama at the bottom. Worse, that this discrimination of creativity within the curriculum of many education systems actively discourages the development of the skills which he argued are critical in the

<sup>&</sup>lt;sup>23</sup> Sperry, R. (1973) Lateral Specialisation of Cerebral Functions in the Surgically Separated Hemispheres

<sup>&</sup>lt;sup>24</sup> Goldberg, E. (2005) The Wisdom Paradox: How Your Mind Can Grow Stronger as Your Brain Grows Older
<sup>25</sup> The School Administrator December 2006 Number 11, Vol. 63 Cognitive Neuroscience Discoveries and Educational Practices Seven areas of brain research that will shift the current behavioral orientation of teaching and learning

twenty-first century. He sited General Electric's Management Education Manager Ned Herrmann's 1978 Herrmann Brain Dominance Instrument after researching Sperry and which differentiates between the front cerebral and limbic quadrants of the left and right hemispheres. But whilst Robinson considered this to be an improvement on the 16 narrow bands the other management interview tool, MBTI<sup>26</sup> identifies, he believed every single one of us is unique and different in the way we process information, therefore making 16 billion variations. He went on to question what intelligence actually is. How intelligent is a gymnast who can remember, and perform complex. muscle movements but who cannot remember his eight times table? In what has subsequently become a defining illustration, Robinson recounts a conversation he had with someone about their personal experiences at school. Forever fidgeting and disrupting her class, the school thought she had a learning difficulty and wrote to her parents. "I think now" suggests Robinson "they'd say she had attention deficit hyperactivity disorder, and they'd put her on Ritalin or something similar. But the ADHD epidemic hadn't been invented at the time. It wasn't an available condition. People didn't know they could have that and had to get by without it" Towards the end of an appointment at her mother's insistence with an educational physchologist, the psychologist took the girl's mother out of his consulting room to have a private word, but before doing so he turned on the radio. Watching through the window the two adults saw this little girl get to her feet and move to the music on the radio. She was graceful and clearly in her element. "You know, Mrs Lynne" said the psychologist, "Gillian isn't sick. She's a dancer. Take her to a dance school". Asked how Gillian Lynne, who subsequently joined the Royal Ballet Company before becoming the renowned Choreography and Director felt,

<sup>&</sup>lt;sup>26</sup> Myres-Briggs Type Indicator – psychometric questionnaire resulting in applicants being catagorised into 16 different styles

she told Robinson "I can't tell you how wonderful it was. I walked into this room and it was full of people like me. People who couldn't sit still. People who had to move to think" <sup>27</sup>.

So from a personal perspective, I needed to think about the process of designing schools in the way that I felt most comfortable with and ironically, it was reading the introduction to Barbara Prashnig's book, Learning Styles in Action<sup>28</sup>, that I found a phrase that resonated enormously. In the introduction of her book, Prashnig quoted New Zealand Headteacher, David Hood, author of "Our Secondary Schools Don't Work Anymore" in which he said *"we don't need research to tell us this; it is common sense*"<sup>29</sup>. I'd like to think that it had been simply common sense that had drawn me to conclude that we needed to design spaces in schools that had a variety of approaches to suit students' individual learning styles, not a perfect A-leads-to-B-and-B-to-C and so on. But my conclusion had to be based on something ....

In 2007 when I wrote Learning Journeys<sup>30</sup>, I recognised that I was using the process of writing to crystallise my own thoughts. The very act of putting pen to paper was necessary for me to ensure I fully understood my subject; that there were no holes in my argument; that I could critically challenge it. American psychiatrist, William Glasser might have said it was evidence that we learn just 10% of what we read yet 95% of what we teach someone else!<sup>31</sup>

<sup>28</sup> 2006 Network Continuum Education

<sup>&</sup>lt;sup>27</sup> Abridged from Robinson, K with Aronica, L. (2009) *The Element: how finding your passion changes everything* 

<sup>&</sup>lt;sup>29</sup> And later ... "If schooling is to be about success in learning for all students then we need to critically examine what we believe about how we teach, how children learn, and what our purpose is in doing both."
<sup>30</sup> Learning Journeys - towards ..... a report published by Isis Concepts January 2008

<sup>&</sup>lt;sup>31</sup> [We learn]10% of what we read, 20% of what we hear, 30% of what we see, 50% of what we see and hear, 70% of what is discussed with others, 80% of what is experienced personally, 95% of what we teach to someone else. Also "I hear and I forget. I see and I remember. I do and I understand" Confucius

But I also recognised that not everyone was the same: many of my colleagues, on the other hand, formed their own conclusions about what was happening to our school environments by contemplating things whilst driving up the motorway or by sitting down and reading widely. In other words, we're all different -but whilst it's widely accepted that we learn in different ways, there is much less consensus on the detail.

Take the phrase 'personalised learning' the detail of which clearly means different things to different people. Few would disagree with the definition that personalised learning seeks to provide an educational setting that is more directly responsive to the diverse needs of individual students as opposed to the imposition of uniform solutions on everyone. But whilst some would interpret that as responding to different learning styles, much of what is written about it, specifically in the UK, relates to equality of opportunity for different socio-economic groups.

Finland's educational system has been described as being perhaps most intuitively and holistically personal, shunning, as it does many examinations, even streaming, in a structure that only starts when a child is age seven. For his book *Under Pressure*<sup>32</sup>, Carl Honoré interviewed Pekka Kaasinen, headteacher of Viertola in the Finnish city of Vantaa. "Competition is good for some" he said, "but not for others so it is better not to have too much of it. Our teachers know what the kids can and can't do anyway, so exams don't add a lot." He went on, "the key is for kids of all abilities to be in the same class together – that is society, after all." And when they **are** tested, Finnish

<sup>&</sup>lt;sup>32</sup> Under Pressure – rescuing our children from the culture of hyper-parenting by Carl Honnoré, published by Orion Books

students fair extremely well: Finland remains at the top of the OECD PISA<sup>33</sup> survey.

In 1961, American psychologist, Carl Rogers said "If we value independence, if we are disturbed by the growing conformity of knowledge, of values, of attitudes, which our present system induces, then we may wish to set up conditions of learning which make for uniqueness, for self-direction, and for self-initiated learning"<sup>34</sup>. A trend of individualised learning became commonplace in the 1970's, but it was not until 1999 when the concept of personalised learning was mooted in Dennis Littky and Farrell Allen's report *Whole school personalization: one school at a time*<sup>35</sup> in which they stated "Truly personalised learning requires reorganising schools to start with the student, not the subject matter. A school that takes personalised education to its full potential is less concerned with what knowledge is acquired and more interested in how knowledge is used".

The Californian Association of Personalized Learning Schools & Services (APLUS+) states"... the latest educational research findings as to how students learn most successfully, including a strong emphasis on parental involvement, smaller class sizes, more one-on-one teacher and student interaction, attention to differences in learning styles, student-driven participation in developing the learning process, technology access, varied learning environments, teacher and parent development programs, and choices in curriculum programs"<sup>36</sup>

<sup>&</sup>lt;sup>33</sup> Organisation for Economic Co-operation and Development

<sup>&</sup>lt;sup>34</sup> On becoming a Person, a collection of essays by Carl Rogers, 1961

<sup>&</sup>lt;sup>35</sup> Educational Leadership volume 57 no 1 pp 2-6

<sup>&</sup>lt;sup>36</sup> http://www.theaplus.org/personalized\_learning.html as at April 2009

In October 2004, Sir Mike Tomlinson's report on *14-19 Curriculum and Qualifications Reform* to the Charles Clarke, the UK Government's Secretary of State for Education and Skills recommended wholesale adaptation of the curriculum and examination structure within secondary schools, proposing the replacement of traditional tests, taken normally at age 16 and 18, with 4-stage diplomas – either *named* (with a pre-determined structure), or *open* (which the learner shapes to their own preferences). "The offer for learners" the report stated, "centres on the provision of clear and meaningful choices, which stretch and excite them, which can be tailored to their needs, interests and aspirations and which materially advance them towards their goals in adult life. In particular, the diploma would provide the opportunity for all learners to discover and enjoy the use of their particular talents, to the highest level possible, while also acquiring the basic capabilities needed for success in adult life."<sup>37</sup>

The 2005 Schools' White Paper published the following year made personlised learning one of just three priorities for UK students. It was formalised in the 2007 Children's Plan following Christine Gilbert's (former head of OFSTED) *2020 Vision* report published in 2006. The DCSF, on its national strategies website in 2009, described personlised learning as "tailoring teaching and learning to individual need" adding that it "is essential in helping children to achieve the best possible progress and outcomes. It is critical in raising standards and narrowing the attainment gaps that exist between different groups of pupils."<sup>38</sup> In its publication *Personalised Learning* – *A Practical Guide* it adds "Perhaps the most essential consideration is the

<sup>&</sup>lt;sup>37</sup> The "Tomlinson" report - Final Report of the Working Group on 14-19 Reform page 10, paragraph 17

<sup>&</sup>lt;sup>38</sup> http://nationalstrategies.standards.dcsf.gov.uk/personalisedlearning/ as at April 2009

flexibility of use the learning environment offers and its ability to facilitate a wide range of different teaching and learning activites." Christine Gilbert detailed areas in which the school environment could support personalised learning thus:

- Changes to the traditional school day and greater access via the internet to interactive learning opportunities, enabling 24-hour access to learning
- Some 'stage not age' models of school organisation, in which children and young people are not routinely taught with others of the same age but, instead, according to their attainment
- Integrated and extended organisations, which have school functions at their core but are not constrained by them, incorporating other services in a 'learning centre'
- More all-age schools, thus abolishing the need for transition between the primary and secondary phases
- School designs that deliberately do away with long corridors and hiding places, with a positive impact on behaviour
- Spaces that can be used for more than one purpose, and classrooms that support a range of teaching approaches.

But while experts are unanimous in accepting that children learn in a variety of ways, there's no agreed system for defining exactly how this works. The Honey and Mumford classification system, pioneered in 1992, uses four categories: activists, reflectors, theorists and pragmatists. Activists learn best when confronted with new ideas; reflectors prefer to observe others and listen to several viewpoints; theorists learn by drawing on their existing knowledge to analyse complex situations, while pragmatists progress by making clear links between the work in the classroom and life outside it. The "complete learner" will use all four styles as and when appropriate.

Meanwhile, another system of classification, "the four modalities", distinguishes between visual, auditory, kinesthetic and tactile learning. The acronym VAK (visual, aural, kinaesthetic) has been associated with personalised learning almost since its inception. But according to Barbara Prashnig, this wasn't the half of it. In her book, she illustrates six basic areas which in turn encompass 49 individual elements, which are drawn from the *Dunn and Dunn model* <sup>39</sup>. It's clearly not appropriate to replicate each and every of these 49 different learning styles in each and every classroom. It's estimated that around 60 per cent of children are visual learners first and foremost, while around 30 per cent are primarily auditory learners. "What matters is making sure a lesson is accessible to every member of the class," says Alan Steer, head of Seven Kings high school in Ilford, Essex. "It's a form of equal opportunity."<sup>40</sup>

Alternatively, rather than catagorising different learning styles, American researchers and authors Renate Caine and Geoffrey Caine consider that "the problem is that the education system pays almost no attention to how natural learning works, and so it relies on some very limited capacities (like memorization) but overlooks almost everything else that is going on in a student's world.". Building on work originally published in 1989, they have documented twelve different principles which document how people learn naturally:

<sup>&</sup>lt;sup>39</sup> Dunn, R., Dunn, K., & Price, G. E. (1984). *Learning style inventory* 

<sup>&</sup>lt;sup>40</sup> 'Personalised learning' by Steven Hastings, TES Magazine, 26 March, 2004

- All learning is physiological.
- The Brain-Mind is social.
- The search for meaning is innate.
- The search for meaning occurs through patterning.
- Emotions are critical to patterning.
- The Brain-Mind processes parts and wholes simultaneously.
- Learning involves both focused attention and peripheral perception.
- Learning always involves conscious and unconscious processes.
- There are at least two approaches to memory: archiving individual facts or skills or making sense of experience.
- Learning is developmental.
- Complex learning is enhanced by challenge and inhibited by threat associated with helplessness.
- Each brain is uniquely organized

These principles, they argue, should help educators "understand how human beings learn and place that understanding at the very centre of teaching."<sup>41</sup> Similar principles were determined by Edwin Ellis<sup>42</sup> and others in their technical report for the US National Center to improve the tools of educators, "Research Synthesis on Effective Teaching Principles and the Design of Quality Tools for Educators".

Consideration of such research has in part led the education consultant to furniture manufacturers VS, Helen Hirsh Spence, to suggest that "sometimes it is still appropriate for students to sit in rows listening to teachers talk from the

<sup>&</sup>lt;sup>41</sup> Caine, R. (2009) 12 Brain/Mind Principles in Action: Developing executive functions of the human brain

<sup>&</sup>lt;sup>42</sup> Professor of Interdisciplinary Teacher Education at the University of Alabama

#### Designing schools from the inside out

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Is leaning back on your chair the sign of a naughty boy? Or is it an involuntary reflex reaction to relieve pressure on internal (blood-flowing) organs?



front of the classroom. But being the 'sage on the stage' is only one way to teach. Brain research is giving us great insights into how we can vary teaching methods to meet the needs of different learning styles. Good lessons need exquisite design – so the teachers can stretch students in the dominant and preferred learning styles, and also in their non-dominant styles. And of course good lessons also get students to access their right- and left-brain hemispheres"<sup>43</sup>. In their report following a 2-year study commissioned by the US National Research Council and chaired by John Bransford (Learning Technology Center, Vanderbilt University) and Ann Brown (Graduate School of Education, University of California) concurred: "A fundamental tenet of modern learning theory is that different kinds of learning goals require different approaches to instruction; new goals for education require changes in opportunities to learn. The design of learning environments is linked to issues that are especially important in the processes of learning, transfer, and competent performance."<sup>44</sup>

But whilst these different principles are considered, and various authors and researchers vie for the defining number of learning preferences, research has also shown that there are aspects in which we all learn in precisely the same way. There are some absolutes.

For example, Dr. Dieter Breithecker of the German Federal Association for posture and exercise<sup>45</sup> works on the basis of the very antithesis of the phrase "sit still and concentrate", Breithecker's research demonstrates that an important aspect of how we learn is whether our dynamic bodies are able to

<sup>&</sup>lt;sup>43</sup> OWP/P Architect + VS Furniture + Bruce Mau Design (2010) The Third Teacher

<sup>&</sup>lt;sup>44</sup> Bransford J.D., Brown A. L. and Cocking R. (2000), *How people learn: brain, mind, experience and school* 

<sup>&</sup>lt;sup>45</sup> Bundesarbeitsgemeinschaft für Haltungs- und Bewegungsförderung e.V in Wiesbaden, Germany

be mobile. If you want a simple demonstration on the load placed on the body by being still, he suggests, try standing with an arm outstretched - horizontal to the floor. Stay like that without moving. Before long, your arm starts to wobble; you are feeling the strain. Now start to move your forearm from your elbow - rotating it through 90° from horizontal to vertical and you'll experience a significant decline in the effort required. Briethecker insists that humans have evolved over millions of years as dynamic, mobile beings, and that it is necessary to our wellbeing to stimulate all our bodies' senses - not just sight, hearing, touch, smell and taste, but also subconscious senses, including vestibular-proprioceptive stimulation relating to our sense of balance. Children intuitively do this walking across tree trunks, and, claims Briethecker, they do so also by rocking back on their chairs. They're not being naughty - in part they are subconsciously reawakening their bodies. Added to this, everyone also benefits from simple movement - enabling oxygen to be circulated through the bloodstream to all our organs, including our brain. And when these organs are fully oxygenated, endorphins are created again adding to our sense of wellbeing. And if, when we are seated, we do so in an ergonomically supportive posture (where there is an open angle between the thigh and the torso - not the old paradigm of 90°) these organs are not confined. A hundred years ago, most people would walk ten miles a day: now it's typically just half a mile.
Studying three groups – two at the Fridtjof-Nansen School in a depressed neighbourhood in Hannover, Germany, and one 'control' group at a nearby school over a four-year study period (2000 to 2004), Briethecker tested his



hypothesis that the physical and working behaviour of students was enhanced by deliberately integrating movement into the classroom and playground. One class received *normal* lessons, where "movement is allocated in the amount to which importance is attached in a primary school". A second had 25-minute breaks during 2 mornings during which they had the opportunity to use a

large choice of fixed and mobile gymnastic equipment. And the third not only had this, but lessons which were organised on the basis of ergonomic teaching methods – using ergo-dynamic school furniture where students could sit or stand at worksurfaces, where they could tip on their chair, or sit on it in reverse. Using the internationally recognised d2 test of attention<sup>46</sup> during the first, third and fifth lessons of the day, and on a monthly basis, Briethecker demonstrated that a student's cognitive skills were enhanced by movement within the curriculum.

<sup>&</sup>lt;sup>46</sup> R. Brickenkamp and E. Zilmer The assessment of selective attention and concentration across ages 9 - 60 years

And whilst it is accepted that this approach is more empathetic to the primary curriculum, there are ways, for example with the use of project-based learning, that it could easily be applied to the secondary curriculum. This research mirrored similar research conducted in America by Mark Rapport from the Department of Psychology at the University of Central Florida, in which two groups of students, one of which suffered from attention-deficit/hyperactivity disorder (ADHD); the group of ADHD sufferers moved significantly more in completing a series of mental tests - "they use movement to keep themselves alert" commented Rapport.<sup>47</sup>

<sup>&</sup>lt;sup>47</sup> ScienceDaily 11 March, 2009 http://www.sciencedaily.com/releases/2009/03/090309105038.htm

### 3

### WHO WE'RE TEACHING AND HOW THEY WORK BEST

Throughout my primary school career, there was one unwritten certainty and that was that I wouldn't be attending the local secondary-modern school – a school where local lore had it that such a lack of discipline meant students could not only skive off for a quick fag, but would actually blow the smoke into the headmaster's face without consequence. The youngest of three, I was removed from the village primary school aged 9 as my parents had become concerned that too much of my education in the early 1970s was being delivered either by the wireless or a new, large, black and white television that stood on tall chrome legs in the corner of the senior of the three classrooms there. Instead, I went for two years to an unassuming but traditional prep school run by a husband-and-wife team five miles away, and from which, having passed my eleven-plus I made my way to grammar school and eventually onto college and a degree.

I was lucky: I had parents who cared deeply about my education, and who sacrificed much from a very humble income to support me. But even if I didn't know it then, I now know with absolute certainty that not all children are so lucky.

A mother once lamented to me that the father of her 18-month old son, from whom she was estranged had provided their son with a breakfast that consisted of nothing more than a packet of Cheesy Wotsits and a Curly Wurly. On a different occasion, the deputy headteacher of an inner-city school told me of the parents of a student who had been suspended (and yet who had breached this suspension and had came into school) swearing "on my life" that their daughter had been at home all day whilst simultaneously watching timed CCTV video footage of her scaling the school's perimeter fence, giving a two fingered salute to the member of staff who was approaching as she did so. I've sat in school receptions watching the police return a truant to the bosom of the school (and then have a conversation with the school's inclusion officer about whether to involve other agencies with the student's housing conditions). And sitting in the computer room of an early academy, the then principle came in brandishing his mobile phone on which he'd taken a photograph and which he now wanted the Network Manger to print out: "I thought" he said "that if the MP wanted to know what was going on I'd show him rather than tell him". The picture which subsequently came off the printer wasn't of the graffiti or vandalism that I expected: it was of a replica Luger (or at least, I think or rather hope it was a replica). My own son, whom I try hard to support in the same way that my parents supported me, doesn't know he's born by comparison. And neither do his friends, nor, probably, any single one of the students in his school.

Alan McMurdo, the first headteacher of Thomas Deacon Academy in Peterborough, courted controversy when the Academy, which replaced three Peterborough schools, opened its doors in 2006 in (at a reported £46 million) one of the UK's most expensive school buildings. He had banned school break times, and whilst he promised to keep the policy under review, the building which had been designed by architects working for Norman Foster had no external social space. "No playground for 'super school'" screamed the headlines from the BBC<sup>48</sup> in an article in which McMurdo went on to say ""This is a massive investment of public money and I think what the public want is maximum learning. They recognise that youngsters can play in their own time, play in their local communities. What I want from my teachers is maximum teaching and I want maximum learning from the youngsters.".

<sup>&</sup>lt;sup>48</sup> http://news.bbc.co.uk/1/hi/england/cambridgeshire/6629655.stm

Peter Simpson, Executive Principal of three Brooke Weston Academies<sup>49</sup> may not fully agree, but in the design of the latest, Kettering Science Academy, his students are not allowed out of the confines of the school either (although the building is designed as a quadrangle, around a central enclosed courtyard which can be used during breaks from lessons). But what links these two schools is that their students need a perhaps greater than average structure in their school day. So whilst it's perfectly appropriate to say that we all learn in different ways, the demographics of the communities which these schools serve are also different.

"You don't know my kids" said another head teacher, this time in an East London school, when I suggested that instead of fixed dual-use "flipscreen" computer desks arranged in static rows, she consider mobile devices and agile, reconfigurable furniture. "And any way, these have the *wow factor* – and I know they work" (she had previously been deputy head at a school who used this style of furniture in ICT-rich, cross-curricular classrooms). A similar pragmatism had lead Peter Simpson to berate me, becoming angry with me for daring to bring in a selection of student chairs for him to consider. Refusing to even sit in any of them, he informed me that he "would not have [his] students sit on plastic or plywood" instructing me instead to bring him an upholstered chair similar to those he had used in previous academies. Whether or not this was, from an ergonomic perspective, correct, was less important: what, I believe *was* important, and which is why I now believe he was right and I was wrong is that the students needed to have demonstrated to them in a tangible way that they were valued - that they we're being given

<sup>&</sup>lt;sup>49</sup> Brooke Weston Academy, Corby Business Academy and Kettering Science Academy

"the best". That someone, at least, cared. "There is a paucity of ambition here" he later told me about Ise Community College, shortly after Brook Weston had taken it over and turned it into Kettering Science Academy. "For example, the parents of a student who was perfectly capable of going onto University persuaded her to leave school at 16 to take a job, like them, as a cleaner".

When I supported a BSF bid in Derbyshire, we were told that one school there couldn't introduce the 'house' system they wanted because of the miners' strike 25 years previously: there were still families who refused to allow their children to be in the same house as the child of a strikebreaker. But in another part of the country, another former mining area, Chris Gerry, Executive Principal of New Line Learning - a federation of two academies in Maidstone, Kent hadn't given up. Whilst he initially accepted that there are a percentage of his students who would never be able to demonstrate the self-control necessary to use the flexible learning plaza he created at New Line Learning, he instead refered to "earned autonomy" – allowing students to create for themselves, the right to use the test-bed (he eschews the phrase 'experimental' feeling that the word suggests a stab in the dark rather than the result of thorough research) spaces he commissioned there. He sees a number of characteristics in learning environments that encourage creativity including trust, freedom of action and variation of contexts. The plazas (there were three, all slightly different, the results of which fed into the design of the new academies which opened in 2010 - see case study 4), in which students initially had to remove their shoes before entering. They have different zones, including different heights with tiered seating modules, which may be moved around to create different environments depending on what's being taught and how.

And whilst we're considering who we're teaching, we shouldn't forget, too, who's doing the teaching! I recall once, working with a school in Northamptonshire, where I had considered proposing black leather bench seating with yellow stitching in the open learning zones, with more than a passing nod to the *Dr Martens* factory nearby. This, I reasoned, both reflected the local economy and the area's heritage of shoemaking, as well as adding a bit of street cred – contributing, albeit in a small way, to the feeling of inclusiveness for the school's largely disaffected students. But I hadn't considered its leadership, and reflecting on the culture of the school which principally reflected that of the head teacher, reasoned that this proposal would be considered frivolous. It therefore never left the drawing board.

This serves to remind that there isn't a one-size-fits-all. No panacea. But that environments do matter. One day, whilst writing this pamplet, and having spent 24 hours visiting schools in the North West of England, I found myself sitting, tired and hungry, in a traffic jam on the A1. Pulling into the next service station, I stood, empty-tummied, staring at the food counter, a book clasped in my hand for company, willing there to be something to eat. But however hungry I was, I couldn't bring myself to order from the burnt-on gravy-stained hotplates, and instead got back into my car, and carried on, to Durham. Here, a telephone call with my MD found me walking around the Cathedral Close, its bells striking seven. The time spent chatting about our respective days now meant that the trusty pizza restaurant had filled up, and so, with hunger starting to make me irritable, I found myself wandering around the market square and down the hill to a French-style cafe, now desperate for something to eat. There was an empty table outside this restaurant, on the bridge overlooking the River Wear. Finding myself in this university city, with students milling, relaxing after a day studying, I sat reading my uber-hero, Ken Robinson's latest book, Element with a glass of wine in my hand and the sound of a penny whistle being played by a busker drifting through the evening air. And suddenly it all made so much sense.

Having struggled with the format of this report for some weeks, I returned to my hotel room, and sat writing. And writing. The environment in which I had unwittingly found myself had unlocked something. Whether it was being in an academic environment, the relaxation of an informal, and idyllic early-summer evening, the busker, or Ken Robinson's words, I do not know. Perhaps all of them contributed to creating an environment which I found creative and in which I could work. It certainly wasn't the same sitting in the carbon monoxide fumes of the Tyneside rush hour, nor the soulless motorway service station.

I mention this because environments clearly have an effect on us. On how we study, or how we work. I had long recognised that getting into the office quarter of an hour later than most of my colleagues, but having walked my beloved retired greyhound along the Ridgeway gave me time to think – still working, albeit not sitting hunched over my desk. In 2004, the market research organisation, ACNeilsen conducted research in New Zealand questioning whether the teaching environment affected the learning outcome. Every single principal, 83% of teachers and even 61% of students believed it did. But, as I pointed out in Learning Journeys<sup>50</sup>, when the British Council for School Environments looked at how schools actually worked, almost a third, 32% of teachers said that the school environments actually prevented them from teaching effectively.

I once read, however, that Jeffrey Archer writes, longhand, with a felt-tipped pen on lined paper in an office at the end of his garden. "If everything is not

<sup>&</sup>lt;sup>50</sup> http://www.isisconcepts.co.uk/services\_information/reports.html

the same, I worry. I always write on an Oxford pad, I always use black Papermate felt-tipped pens, and I always correct my work with Steadtler HB pencils" And whilst I'm neither a perjurer, nor a millionaire, neither could I write in such a controlled environment.

Because we're all different.

Schools are frequently referred to as communities, and communities are made up of people, each with their own distinctive character. Whatever their similarities, schools are all different, and interior solutions to them therefore have to be unique too.

## 4

#### HOW WE ORGANISE SCHOOLS AND WHAT WE'RE TEACHING IN THEM

I can still hear the outburst that filled the farmhouse kitchen when, in 1976 I announced that I was 'giving up' Latin by virtue of selecting my GCE O' Level options. But this explosion came, not from one of my parents, but from family friend Dr Kenna – a big man; rotund and ruddy – a retired priest and academic who had collaborated with John Piper on a number of ecclesiastic commissions. He gave a characteristic enormous sigh followed by "Good Heavens". How, he wanted to know, could I understand the English language if I didn't understand its (largely) Latin derivation.

Much has changed in the subsequent 30+ years. In most UK state schools now, Latin would not be even found on the timetable let alone there be any consternation of someone not continuing to study it. Rightly or wrongly what, instead, fills the curriculum are lessons designed to be more reflective of the world into which students will inhabit. If you accept that "you can't learn in school what the world is going to do next year"<sup>51</sup> this seems entirely appropriate, and this was the fundamental tenet which fuelled the *educational transformation* debate during the early part of the twenty-first century, and which was most graphically portrayed in the "Did you know?" *Shift Happens* presentation<sup>52</sup>. The latest version of this presentation claims that the amount of new technical information is doubling every 2 years. "For students starting a four-year technical or college degree," the authors hypothesise "this means that half of what they learn in their first year of study will be outdated by their third year of study" (by 2010, it was, apparently predicted to double every 72 hours).

<sup>&</sup>lt;sup>51</sup> Henry Ford

<sup>&</sup>lt;sup>52</sup> *Did You Know?* originally started out as a PowerPoint presentation for a faculty meeting in August 2006 at Arapahow High School in Centennial, Colorado, United States. There are numerous versions, my personal favourite being at http://www.youtube.com/watch?v=OhuV\_rmf5Mg&feature=related

But it is inevitable that the ebbing and flowing of pedagogical development and educational ideology will continue – conversely for example, Michael Gove, the UK minister for education in 2010, told The Times "I'm an unashamed traditionalist when it comes to the curriculum. Most parents would rather see children sitting in rows, learning the kings and queens of England, the great works of literature, proper mental arithmetic, algebra by the age of 11, modern foreign languages. It's not just about being able to do business in Europe, it's about access to Goethe and Balzac and Dante."<sup>53</sup> What this fundamentalist view appears to discount, however, is the exponential changes society is experiencing. Neither does it give any credence to the notion of enabling students to *learn how to learn* – any acceptance of Jean Piaget's<sup>54</sup> definition of intelligence – knowing what to do when you don't know what to do. It implies that education relates simplistically to the dispensing, and absorption, of facts.

None of this, though, alters the fact that there remain, broadly, just two different ways to organise a school: the faculty-based model and the schoolswithin-schools model. Whilst the more traditional faculty-based model provides discrete spaces for distinct subject sets such as humanities and languages, *schools within schools* responds to the simple view that smaller school community sizes are beneficial to students' learning, resulting in a school building/campus that allows for largely autonomous but co-located groups of students. The trend is more common in the United States<sup>55</sup>

 <sup>&</sup>lt;sup>53</sup> Interview to Thomson, Alice and Sylvester, Rachel – The Times 06 03 10 *It's not about class, it's about the classroom, says Gove* http://www.timesonline.co.uk/tol/news/politics/article7052100.ece
 <sup>54</sup> 1896 – 1980, Swiss developmental psychologist, Director of the International Bureau of Education (1929-68)

<sup>&</sup>lt;sup>55</sup> "The Northwest Regional Education Laboratory in Oregon, USA has published research on the relationship of school size to various aspects of schooling. Kathleen Cotton's findings in 1996 and 2001 show that *small schools do a better job than large ones on virtually every measure of student attitudes and* 

although in the UK, the Calouste Gulbenkian Foundation<sup>56</sup> awarded charitable grants to 39 schools to enable them to investigate becoming more "human scale" including Brislington Enterprise College in Bristol, where an "interdisciplinary team of teachers are assigned to each learning community. Each team assumes responsibility for the total education needs of the students"<sup>57</sup>. Research carried out for the Local Government Association is often sited to support this approach and the report that was published following this research programme in 2002 states that "the relationship between school size and GCSE outcomes was curvilinear. In other words, after controlling for pupil, school and LEA background variables, performance improved with size up to a certain point, and then declined. The best results were obtained for medium-size schools (with a cohort of approximately 180-200 pupils) and the worst in the very small or very large schools" (thus suggesting to promote a six-form entry model, in other words around 900 pupils between the ages of 11 and 16). "However" it later continued, "the differences (while statistically different) were very small".58

Clearly there are intermediary approaches, including *house systems* (which evolved from British public schools where students were divided into boarding houses, these becoming more formalised groups for inter-house

achievement. Teachers like them, and their curricula don't suffer. They don't even cost more." http://www.hse.org.uk/research/research1.html

<sup>&</sup>lt;sup>56</sup> A charitable foundation established in Portugal in 1956 with cultural, educational, social and scientific interests. Its founder, Calouste Gulbenkian, was an Armenian born in Turkey who worked in Britain and became a British citizen, lived in France and settled in Portugal. He was multicultural and multilingual and spent his career bringing people from different cultures and nationalities together.
<sup>57</sup> http://www.because.org.uk/

<sup>&</sup>lt;sup>58</sup> Spielhofer, Thomas, O'Donnell, Lisa , Benton, Tom et al. *The impact of school size and single-sex education on performance* research report, July 2002 National Foundation for Educational Research, funded by the Local Government Association (report 33)

http://www.nfer.ac.uk/nfer/publications/SPP01/SPP01.pdf

competition) as well as vertical tutoring (where pupils are not arranged by the year of their birth, but whereby differently aged students are organised as a single group or community) which schools have implemented within otherwise traditional settings. Where schools retain autonomy (in the UK, Academies operate outside of Local Authority control as do all private schools) the way the curriculum is delivered can also be changed. For example, Nick Jones developed and introduced the Cabot Competency Curriculum at John Cabot Academy in Bristol whilst he was head there (before moving to Twickenham Academy - see case study 01, page XX), Mike Davies, headteacher at Bishops Park College<sup>59</sup> in Clapton toyed with what he referred to as a *tartan curriculum* - which he saw as being "planned from the perspective of a student engaged in inquiry across a swath of ideas and competencies rather than a stranger visiting a series of disconnected subjects"<sup>60</sup> and at Glossopdale Community College in Derbyshire they built on the RSA Opening Minds framework<sup>61</sup>, implementing a thematic curriculum for 11 to 13 years olds which they called C3.

So with differing views about what and how we teach, it becomes more important that the architectural approach embraces the educational philosophy of the school. It becomes increasingly important that the interior and the structure of the school are considered as a whole. A fully integrated approach is required.

<sup>&</sup>lt;sup>59</sup> The school combined with Colbayns High School in 2009 becoming Clacton Coastal Academy.

<sup>&</sup>lt;sup>60</sup> http://www.hse.org.uk/ssp/flagship.html

<sup>&</sup>lt;sup>61</sup> The Royal Society for the encouragement of Arts, Manufactures and Commerce (RSA) developed Opening Minds in response to a belief that the way young students were being educated was becoming increasingly detached from their needs as citizens of the 21st century. It is based on five sets of competencies, including Citizenship, Learning, Managing Information, Managing Situations and Relating to People. http://www.thersa.org/projects/opening-minds

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### 5 A HISTORICAL PERSPECTIVE

It's not as if this is without precedent: architects have a long history of involvement in what's inside the buildings they design every bit as much as the detail of the building itself. Whilst neoclassical architect, Robert Adam (1728-1792) is best known for remodelling existing buildings (including Kenwood House and Syon House in London) he designed three major houses in London – Wynn House in St James's Square, 20 Portman Square and Derby House in Grosvenor Square as well as Register House and the University buildings, both in Edinburgh. Here, he insisted on designing everything, right down to the smallest detail, himself (examples include table silver, locks and mirrors) with the furniture manufactured for him by, amongst others, Chippendale, Hepplewhite and Sheraton.

But perhaps more readily remembered for designing both the building and the interior – what he termed "total design" is Charles Rennie Mackintosh (1868-1928) - synonymous with the arts and crafts movement of the late nineteenth and early twentieth centuries. Most famous for the design of the Glasgow School of Art, the library ("one of the finest rooms in Glasgow") the space remains both an architectural reference site as well as a wholly appropriate space in which to read. Here, the budget was so tight it was necessary to build the school in two halves - the earlier north part being extended to the south eight years later. This lack of funds, too, meant that such ornamentation as was possible to include had also to be functional - the electric light fittings, for example in the library and the wrought iron window brackets which also acted as supports for window cleaners. Mackintosh went on to design Hill House for publisher Walter Blackie as well as Catherine Cranston's four Willow Tearooms where he designed furniture, light fittings and cutlery as well as, with his wife, Margaret Macdonald, menus and the waitresses' uniforms. His last public commission was for Scotland Street School (he had previously

designed Martyr's Public School) which included three entrances – for boys, girls and infants – "especially for the wee ones who might be intimidated by the scale and rambunctious jostle of the large towers and the older children" Le Corbusier's (1887-1965) perhaps best known "machine a habiter" (machine for living)<sup>62</sup> is Villa Savoye built in 1931 where again we can see a building's architect taking responsibility for the interior. Built-in furniture together with the architect's trademark chaise longue and LC2 armchairs are used ensuring the house retained the spaciousness for which it became famous. Consistent with Le Corbusier's principle of considering housing to be machines for living, he designed of two schools in France as part of a development of apartments (as well as the Art School in Chandigarh, India, designed in 1959) – in 1945 the Unité d'Habitation de Marseille and in 1960 the Unité d'Habitation de Firminy development in Firminy, both of which included a school.

Walter-Gropius-Schule (1968) in the southern part of the Neukölln district of Berlin was one of the last projects of Walter Gropius, founder of the Bauhaus and later The Architects' Collaborative, the latter of which completed the project. The building is designed as a honeycomb of hexagonal classrooms – each with an ante room "pod" for group discussions – the form of which was the result of daylight studies. Working around the 6 internal walls of the classrooms, windows are on walls 3 and 5 with the chalkboard on wall 1 allowing bi-directional light to enter the space.

The degree of control these architects exercised over the interiors of their buildings could easily have given rise to the joke that instead of the "Royal Institute of British Architects", RIBA actually stands for *Remember; I'm the* 

<sup>&</sup>lt;sup>62</sup> Le Corbusier *Towards a New Architecture* (1923)

*bloody architect.* In 1999, architectural practice, Foster and Partners designed the Manor Road building for Oxford University in which are housed their social sciences departments, in a project that included the design of a simple furniture system. Rectangular double-depth worksurfaces up to 3.2 metres long and uninterrupted by intermediate legs provided enormous flexibility in the way these desks could subsequently be occupied by research students in order to "develop a new culture in social science at Oxford, encouraging collaboration and interaction between academic staff and research students". The clinical nature of the largely black-and-white design (Fosters traditionally claim that the colour comes from the building's inhabitants) however was later found lacking: "the sterility of these spaces has been criticised and identified as one of the major drawbacks to encouraging research student activity in the building"<sup>63</sup>

<sup>&</sup>lt;sup>63</sup> http://www.politics.ox.ac.uk/news/story.asp?n=53&a=1

## 6

#### THE NUTS AND BOLTS OF IT ALL

I've sat in dozens of design meetings discussing the design of a new school. There's frequently 20 or more people sat around the table including architects (both building and landscape), an educationalist, cost consultants and lifecycling experts. But the two for whom I always make a bee line are the M&E (mechanical and electrical) consultant and ICT Systems Architect. For years I've tried to merge the acronyms of our respective disciplines into a single, super-acronym, but now finally have accepted that 'fet mice' won't get me



onto the list of compilers for The Times crossword!

The simplicity of this view however, belies the, more often than not oft fragmentation of the approaches employed. Whether it's a major capital project such as building a new school, or the simple refurbishment or conversion of an existing teaching space, all

too frequently, in my experience, a truly integrated solution is avoided by employing a silo approach<sup>64</sup>. Whilst school bursars may be excused for not fully recognising the interdependence of what, on the face of it, appear to be three separate component parts to the building, the same cannot be said of professionals who work on these projects full time. But at least with the consortium model, these three people are likely to be sitting around the same table.

<sup>&</sup>lt;sup>64</sup> The opposite of systems thinking, silo mentality takes its name from grain silos on arable farms whereby each tall structure has a single purpose – for the storage of one grain type – and which does not communicate with other silos.

Servicing a building with power and data whilst retaining the flexibility to move furniture around, meaning the arrangement is specifically appropriate for the activity going on at the time remains, in 2010, the million dollar question. For truly agile, responsive environments to be created whilst supporting the ICT infrastructure, there remains an enormous reliance on wireless data and battery power. The wireless band-width installed in most British schools remains, even in 2010, insufficient for whole classes to simultaneously download large data files (such as videos) whilst battery recharging relies on the fallibilities of individuals to correctly plug devices into recharging cabinets, as well as timetabling requirements which would test even an air traffic controller. For years we've been promised that research and development will solve these issues, but as previously discussed (in the case of battery life) the technology's demands for power are outstripping (or at least keeping up with) the advances in technology. And as Shift Happens (see page 44) reminds us, the amount of data too increases, exponentially so.

#### ICT

Recognising the importance of information and communication technology, or ICT, within education, many building schools for the future (BSF) projects in the UK were bid by a consortium partnership between a construction company and ICT provider. In Kent that's Kier Construction with Northgate, Nottingham had Carillion with Ramesys and Essex, Skanska with RM. But the physical link between these two partners and the disciplines they represent rests in the furniture on which the computer sits and the cables that run through it, into the building and then on into the outside world (hence ICT, F&E and M&E).It's a case of the leg bone's connected to the knee bone, only

it's the finger bone that's connected to the laptop bone and the laptop bone that's connected to the table bone. Oh hear the word of the Lord!

There's a joke that you can tell when an IT device is obsolete, because it's in stock. So whilst every aspect of a major capital project has to be agreed months in advance of the new building opening with little remaining as 'reviewable design data' (RDD) past the point where contracts are signed, the specific IT devices are not decided on until a few weeks before the doors open. This way, schools unarguably get the latest technology at the latest (frequently reducing) prices. So it's inappropriate within a text that (hopefully!) has a shelf life beyond that of a monthly periodical to discuss specifics, save to say that we all know they're getting smaller, can do more, and batteries are, thankfully, getting better (although rumour has it that increases in battery technology is simply keeping pace with the technology's demands of it, in other words we're largely standing still). But few would pretend they know precisely what the future holds.

Which makes the act of designing an interior to support whatever the future brings us the very stuff of a clairvoyant. But on the other side of the same coin, and whilst there will be many who howl from the rooftops at such a suggestion, it means we can to some extent put it to one side. How can you design somewhere to support something, the detail of which you do not know? So don't try. Why attempt to consider the minutiae of something when, if you're honest with yourself, you fully accept that it'll all have changed, and in potentially significant ways, before the paint is dry on the school's new welcome sign. Another oft-used expression is "it's not what you can do with ICT [that's important] it's what ICT can do for you" And therefore from this perspective too, surely allowing ICT to drive the interior space is a little like the tail wagging the dog. But as Stephen Heppell, Professor at Bournemouth University where he is Chair in New Media Environments and quoted in 2006 by the DfES as "*the most influential academic of recent years in the field of technology and education*" pointed out, in an article published early in 2011, "Knowing where we will be in ten year's time is helpful. We are approaching a time of tight money in teaching and learning. Bankers' greed has robbed education and we are facing the consequences. We can't afford to waste or equivocate as we invest going forwards. ICT in the year 2000 showed us very clearly where education might be going. It showed the choices for the decade ahead - productivity against community, despair against delight. As we leave the Noughties and enter the Impecunious Teens we won't have enough money to equivocate. We will need to get it right first time."

Former deputy head teacher Myf Powell who supported the ICT bid of a number of BSF contracts including the first (Kent) and last (Hertfordshire), suggests that whilst technology will inevitably change, it still frequently comes down to the simple questions: fixed or mobile devices? Fixed or mobile presentation? The simple further series of questions that need to be answered, she sees it as her role, as a consultant, to "find a point in the process where [the client] has that eye-opening moment". Constantly asking "have you thought about …" the fundamentals of determining an ICT strategy are, with the exception of one key word, remarkably similar to that of determining an F&E strategy. "What are you doing? What are you doing it with? And how can technology support it?"

There will always be the argument that ICT is as simple as "fixed or mobile devices and of course you have to have an interactive whiteboard" as Myf laments is all too frequently the view she meets. But others, including Juliette Heppell, head of PSHE and Citizenship at Lampton School in Hounslow (see case study 02, page 81) fear that, for example, by not allowing mobile phones to be used in lessons, we're potentially taking away one of the most powerful tools available to students - and one which most secondary age students, at least in the UK already own (meaning the school isn't even investing in the technology). Like ball-point pens and calculators, mobile phones join the list of items that have been banned in British schools. And whilst, in the US, roughly half the school districts allow students to connect personal devices to the school network<sup>65</sup>, with the exception of USB memory cards, in the UK this is much less common, opening up, as it does, a can of worms regarding software licensing, security against viruses and software version compatibility. So, accepting these very real constraints, what is possible? UK academies sponsored by the United Learning Trust<sup>66</sup> retain separate computer classrooms (although they do not have specialist writing classrooms) but elsewhere this approach is gradually evolving to positions whereby ICT is more seamlessly integrated into the curriculum. To me, the inevitable conclusion is twofold: a *mixed economy* of spaces and devices - some fixed and some mobile; and that great British tradition of compromise - there are some things you just can't do. Get used to it. At the moment that's probably a whole class simultaneously dragging down raw graphics files across a wireless network on a suite of laptops at the beginning of the last lesson of the day.

<sup>&</sup>lt;sup>65</sup> Online research conducted by Canadian teacher, Ben Hazzard in 2009

<sup>&</sup>lt;sup>66</sup> A subsidiary charity of The United Church Schools Trust, founded in the Church of England on the principles of respect, service and compassion in 1883. Its current (2010) chairman is The Rt Revd & Rt Hon The Lord Carey of Clifton, Archbishop of Canterbury from 1991 to 2002

Because some laptops will inevitably have no power, others will run out before the end of the task, and even if everything worked perfectly, the network would fall over due to the enormous load it was being put under. If that's what's demanded of a lesson, plan it in such a way that you can use fixed devices, or that not everyone is doing the same thing at the same time. I visited a school once which had implemented a programme whereby all students could buy their own laptop at preferential rates, with those who were unable to do so being able to borrow one from the school library. One boy in the class was working in his exercise book, and explained to me that his parents couldn't afford to buy him a laptop, but he'd forgotten his library card so couldn't borrow one from the school either. He would have to remember his card the following day, he told me, borrow a laptop then and spend his break writing up his work. "I bet you're glad *you've* got a laptop then", I commented to the boy who was sitting next to him. "Not really" he replied, "I can't log onto the network."

Technology solutions have started to become commercially available to enable easier connectivity to mains power though, including Dell's Latitude Z launched in 2009 which was too expensive to be used within most educational settings and used inductive technology and Wildcharge™, which RM integrated into its Mobile One in 2011 which instead used a conductive surface and which proved more cost effective and therefore appropriate for educational environments. Both solutions, however, still required a cable which needed to be plugged into a power supply, and therefore both solutions cannot ignore their reliance on routing these cables through the furniture © 2011 James Clarke

#### F&E

When I start a conversation with a school, I try to remember a sentence from a book I read many years ago, not because I'm a great believer, but simply because it was written by a family friend. In *Mr God this is Anna*, Fynn quoted Anna as saying "please, please Mr God, teach me to ask the right questions" and, whilst accepting my considerably shortcomings in living up to such a high ideal, I do at least try to genuinely understand what a school is trying to achieve before I start considering how environments can support these objectives. Is it to get 15 boys into Oxbridge next year or match Magdalen College School's claim of 100% passes at A' Level? Or is it more openly to simply enable students to learn how to learn?

And I also need to understand how far along the spectrum of innovation they are. By definition, the safest solution is the traditional one – the one that runs along the lines of "if it ain't broke, don't fix it", so last year's solution becomes this year's solution, with each solution being based on the previous one, itself being informed by the one before it. To do this, I show schools four different solutions, starting, at number one with a traditional didactic, *chalk and talk* all students face the front, teacher as the *font of all knowledge* and one single fixed presentation point, through to four, based on Warwick University's CETL<sup>67</sup> where students have (between them all) just one single horizontal surface on which to work (which is called the floor) – although as a furniture designer, I recognise that this last solution isn't doing much for the industry in which I work! In between are furniture solutions which can be reconfigured

<sup>&</sup>lt;sup>67</sup> Centre for Excellence in Teaching and Learning

between lessons to suit the particular activities which are planned in the subsequent lesson as well as those which the students can move themselves, throughout the course of the lesson to reflect either their personal learning style or again what's happening within the lesson at that time. In each instance, the means of display and what type of ICT is changed too, and a note made of the consequential changes to how power and data must be presented within the classroom. Most frequently, it has to be said, the teachers to whom I speak suggest they're around a *two*, meaning they're really slap bang on *one* but are concerned that this shows them as unimaginative or not ambitious in moving the school forward so instead plump for *two*.

Number two really does rely on staff moving the classroom to suit, and if I'm honest, I think if I'd just taken a lesson of thirty stroppy year 11's in the bottom set of English, instead of starting to shift the furniture around between the end of that, and the beginning of the next lesson, just because that one is top set year 10 who are, at the beginning of their GCSE course, calmly discussing The Crucible, I'd opt for ten minutes and a strong coffee in the staff room. Wouldn't you? In reality, I suspect number twos are really number ones who fancy a different racy-shape table than the rectangular ones they're used to. My suspicion is that number two's are really number ones in disguise.

Number three, on the other hand, is different. When, in 2003, Shin and Tomoko Azumi designed Orbital, winning the Design Council and Department of Education "Furniture for the Future" competition, they sought to make it intuitively agile. The research they conducted with schools showed them that classrooms really ought to morph into different environments throughout the course of a lesson if they were to truly support what was going on. "The teachers" they said "were like performers, bringing entertainment into the classroom to try to maintain students' attention They also recognised, as was discussed in "how we learn" that the human body is dynamic – that it needs to move. And so they used a swivel chair rather than a static 4-legged one so students could swing round and follow the teacher as they moved around the classroom.

When, in 2003, Marc Davies of Counties Furniture Group, (a not-for-profit organisation owned by local authorities) and Gary Flanagan, then of Birmingham City Council and later to become Education Director at Partnerships for Schools started thinking about furniture for the Birmingham BSF bid, they started at the beginning. "We felt that we needed to get the teachers to look at behaviours" explained Davies. So, using space Kenn Fischer's pedagogical activities<sup>68</sup>, they asked teachers (who were delivering standard curriculum subjects rather than project-based learning) to complete surveys of when they saw these behaviours within lessons. The result was, despite a reluctance at Partnerships for Schools (because BSF was still considered a buildings provision, driven by architects) a clear demonstration that some flexibility was required even in general teaching.

In her paper "Furniture for schools"<sup>69</sup> Anna Holder claims that "flexibility is the key for today's learning furniture" qualifying this statement with "this is true both at the scale of the individual pupil, and in terms of the spatial arrangements and combinations of furniture for different group sizes and uses". She goes on to say that "contemporary pedagogy emphasises the place of group-work and the movement from individual learning, through

<sup>&</sup>lt;sup>68</sup> http://www.eduweb.vic.gov.au/edulibrary/public/assetman/bf/Linking\_Pedagogy\_and\_Space.pdf
<sup>69</sup> Anna Holder, University of Sheffield www.imagineschooldesign.org

small-group discussion, and collaboration to larger collective inquiry." Matching this Nirvana to the practicalities of several kilometres of plasticcovered copper requires a degree of pragmatism though.

Because we have to accept that power and data cables and leads act as a very real tether between the user and the building, and using the same ideal as described earlier by Myf Powell [how can this support what you're doing?] real care has to be taken in the specification of furniture, specifically if schools are to accept the challenge laid down in the UK by Partnerships for Schools to introduce "new ways of organising learning and using new technologies in physical and virtual spaces that are designed to inspire, engage and motivate every learner" <sup>70</sup>. The role that the furniture plays therefore becomes increasingly important with the phrase "cable management" being used by many as a golden bullet.

I find it difficult to accept, however, that whilst a section of horizontal basket or tray suspended under the worksurface is an appropriate solution for a commercial office, the same cannot be said for a classroom environment specifically where mobile devices are employed. Horizontal cable management of this style can be appropriate to discretely manage cables that are infrequently moved and which serve static IT devices, but even then, in many instances it is not used to its full potential. It strikes me that expecting transient users, specifically young students to access services under the desk seems, in all but an extreme minority of cases, to be niaive in the extreme. Notwithstanding, with no apparent alternatives available, in many early cases, the simplest (as they were also the cheapest) of these solutions found their

<sup>&</sup>lt;sup>70</sup> Partnerships for Schools publication "Expectations of transformation with building schools for the future" www.partnershipsforschools.org.uk/.../Expectations\_of\_transformation\_examples.doc

way into classrooms, largely, I believe, because the vacuum formed by the rapid increase in requirements to "do classroom furniture differently" (as was inferred by the transformation agenda at the time) was filled by commercial furniture companies who found themselves kicking their heels at a time when the commercial furniture market was struggling.

Added to this, the most frequent means of bringing cables from floor level to this horizontal system is to rely on the leg frame of the table. Here again issues arise, as leg frames are by their nature, fixed, and power sockets, whether wall-mounted or fitted within the floor void are, regrettably, infrequently in the precise position you'd like (see also image on page 70). Inevitably, therefore, most furniture solutions employed were, at best, adequate on day of first installation but rarely flexible enough to provide a long term solution. Insufficient consideration was given to managing cables vertically (where the greatest design constraints exists) and inappropriate solutions originally designed for different environments specified to simply conceal and manage the excess cable that usually comes from the manufacturer. Some innovative solutions have subsequently been designed, including mobile power hubs, but these too rely on power and data sockets being presented in the middle of a classroom floor, meaning it's not possible to implement this solution in the majority of existing buildings without substantial work. Alternatively, accepting that power and data is only presented on a wall



although retaining flexibility of the internal classroom space has brought about some interesting solutions. But this is just one side of the furniture coin. The other side relates to quality. As was touched on in the introduction, there has, at some stage to be a serious debate between quality, quantity and outcomes. In the year of my birth, 1963, Robin Day (not the one with the bow tie, but a designer of the same name) designed the Polyprop chair for furniture manufacturer Hille – he'd worked with them since the late 1940s, when, together with designer Clive Latimer he won a competition organised by the Museum of Modern Art in New York for low-cost storage and which brought him to the attention

of Rosamind and Leslie Julius of Hille (she was the founder's granddaughter) who were transforming the company from a traditional furniture maker into one of the preeminent design-led British manufacturers. The company spent around £6,000 – a huge sum of money at the time – and three years, developing an injection mould that could produce the chair from the newly invented plastic, polypropylene. It was described, that year, by the *Architects' Journal* as "the most significant development in British mass-produced design since the war" and in 2009 was featured on the Royal Mail *British Design Classics* stamp issue. Undoubtedly, Day's polypropylene chair was, at the time of its launch, a ground-breaking design, and with over 14 million sold, it has

gone on to become a commercial success. In 1971, the "Series E" school chair derivative was launched, and this chair is to this day available for a little over £10 a unit. It is said that pretty well everyone in the UK will have sat on one at one time in their life.

But in 2008, when a rather rotund Charles Clarke, then UK Education Secretary, complained that chairs were too small, he wasn't referring to a discrepancy between his stature and the size of a seat he'd been offered, but was, instead, referring to research carried out by the British Education Suppliers Association (BESA) and the Furniture Industry Research Association (FIRA)<sup>71</sup> which demonstrated that students were, by then, around 2" taller than they were when the original polypro chair had been designed. "Much of the furniture used in schools would be deemed illegal if used in the workplace under existing health and safety legislation"<sup>72</sup> commented FIRA's chief ergonomist, Levent Çaglar.

<sup>&</sup>lt;sup>71</sup> Çaglar, L. (2001). Anthropometric Survey of School Children.FIRA, 2001. The study compared the measurements of 1,500 children in 2001 with data from 1971, and found that average heights of children increased at the rate of 1cm a decade, with most of the growth occurring in the lower leg.
<sup>72</sup> http://www.fira.co.uk/javascript/imagemanager/images/firanewsjanuary2006.pdf

Australian furniture manufacturer Sebel, fully acknowledges this; its literature<sup>73</sup> claims the design of its Postura chair (which has been widely adopted in schools both in their domestic and international market) is the



result of a three year research programme involving 13,000 students. However, research which had been carried out regarding dynamic body movement, specifically that by Dieter Breithecker which is discussed in "How we learn" (page 24) suggests a different approach. During Land Security Trillium's bid for Kent BSF, a decision was made to design a new seating solution as part of the project, and a collaboration

was made with Orangebox to design and manufacture what was originally referred to as "the Kent chair" and which became known as Newton, and which was launched in 2009. "We've taken sound ergonomic principles" commented Orangebox's Ergonomics Development Manager, Jim Taylour, "and created a robust, comfortable chair that we believe heralds a new generation of school seating" when describing the chair which combines a forward-rocking motion to the reverse-cantilever style, with a sliding seat.

<sup>&</sup>lt;sup>73</sup> http://www.sebel.com.au/contact/UK%20Education%20Catalogue.pdf

This enables taller children to pull the seat forward with their feet resting on the floor whilst shorter students push the seat back and instead allow their feet to rest on the integral footrest. In this way, students of differing heights but each sitting on the same chair and at the same (typically, in the UK, fixed height) table can adopt an ergonomically correct seating posture. As Alan Gardner, a retired orthopedic surgeon and a trustee of the charity BackCare pointed out in an article in The Times, "You can have a one metre difference in height between a 15-year-old girl and a 15-year-old boy."<sup>74</sup>

But such solutions, and those also by German manufacturer VS which too reflect the principle of dynamic sitting remain more expensive than the ubiquitous £10 polyprop chair; most chairs sold in the UK will cost schools only around 50% more than this and whilst the school at which I am a governor is, in January 2011, battling with the reduction of its capital budget (from which furniture, as well as maintenance to its building is funded) in excess of 80% (an allocation of a little over £20 per student), it is inevitable that cost will come to the fore in comparing different solutions. You could buy about 4 Postura chairs for every Newton chair.

But would they perform as well? From Breithecker's research, the answer would be a resounding "no". But if you don't have the money in the first place? None of these judgements are easy: it would be a foolish manufacturer who would say "buy this chair and your results will improve". I haven't met one yet.

<sup>&</sup>lt;sup>74</sup> The Times, November 5, 2008 School chairs too small for fat children http://www.timesonline.co.uk/tol/news/uk/education/article5083896.ece

#### M&E

On a recent Academy bid, considerable discussion took place regarding the provision of a full access raised (or suspended) floor. These are constructed from horizontal square floor panels, each corner of which sit on steel pedestals allowing services (including power and data cables) to be distributed in any direction underneath them. These cables can then be terminated at any point under the floor, and accessed from above either by a flush mounted floorbox (a pressed steel box, normally with a hinged lid, in which power and data sockets are fitted) or a grommet, enabling power and data leads to be passed through and plugged into sockets which are instead positioned underneath the floor. The considerable advantage that a raised floor offers is that it means furniture can, theoretically, be configured in any position and serviced with power and data rather than having to be positioned adjacent to a wall-mounted socket (or alternatively having cables trailing over the floor which, it goes without saying, creates trip hazards). In terms of future proofing the school, a raised floor allows enormous flexibility in enabling teaching spaces to be reconfigured, and yet still serviced appropriately.

But these solutions don't come cheap. In a typical 9,500m<sup>2</sup> new-build school, the additional cost of installing a raised floor though out the whole school would, at 2010 rates and including the additional height of the building (but also reduced load on the foundations), be in the region of £300,000: installing one only in part of the building can, without careful detailing, become tricky (foundation and floor slab details can become complex, and therefore more

expensive). But when we offered to include one in our proposals for the Academy, these weren't met with the degree of enthusiasm we had expected and the reason, we later discovered, was the head's previous poor experiences with them – experiences which later informed the following photograph which we set up in a photography studio, (and which have the dubious additional feature of also demonstrating what McDonalds has in common with a school building.)

The floorbox which can be seen on the left of the image, is fed from the under-floor power and data distribution (typically via a "busbar" power trunking<sup>75</sup> - think Hornby OO railway track) via armoured cabling – similar, aesthetically to the hose in a domestic shower and which can be seen



disappearing off, out of the shot to the left. The floorbox can subsequently be positioned anywhere that can be reached by the length of this 'umbilical cord'

<sup>&</sup>lt;sup>75</sup> For example, see http://www.electrak.co.uk/products/busbars/

from the fixed (lateral) position of the under-floor trunking. But what, euphemistically, is referred to as 'value engineering' had reduced the length of this<sup>76</sup>, together with the number, and positions of the under-floor busbar trunking meaning that it was now not possible, without substantial additional work, to reposition the floorbox simply anywhere – there were real constraints meaning it wouldn't be where the school now required it to be. Only the head didn't know this. At least he didn't until it was too late. For him, a raised floor had over promised and under delivered.

And the floorboxes themselves also have their own issues, even when they can be positioned appropriately. Designed to be opened and closed, and to be in use even when closed, they frequently have a section within the lid which is independently hinged, allowing the cables to pass through even when the main floorbox lid is closed (this too can be seen in the photograph). Only these "flaps" are frequently fiddly and often not fully retracted even when the floorbox is not in use creating their own trip hazard. Lockable lids can restrict who has access to them (meaning, in theory, this potential flaw can be managed), but in practice, with cleaners requiring access for vacuum cleaners and working under time constraints mean that more often than not, a floorbox is something to trip over.

<sup>&</sup>lt;sup>76</sup> McDonalds reduced the length of its drinking straws, thus saving tons of plastic

# TESCO SCHOOLS?

So where will this all leave us? The UK government's comprehensive review of all capital investment in schools, set up following the announcement to halt BSF in July 2010 was tasked to "assess the scope and make recommendations for how to distribute capital more effectively, including simplification of procurement, and increased use of standard and modular design"<sup>77</sup> Chaired by Sebastian James, Group Operations Director for electronics retailer, Dixons, the review panel also includes Kevin Grace, Director of Property Services for supermarket chain, Tesco, meaning, when linked to the term of reference quoted above, a widespread prediction gathered momentum that the programme would be replaced with one whereby we construct the same building design in St Austell as St Helens. That, after all, is what Tesco and Dixons do.



Ironically, sitting in a design review meeting in 2009 and discussing the morning's papers which had included an aerial shot (above) of the new buildings under construction for Brislington Enterprise College, a bid-team colleague commented on the now familiar *strawberry cluster* design. "One

<sup>&</sup>lt;sup>77</sup> http://www.education.gov.uk/news/news/~/media/Files/lacuna/news/bsf/TermsofReferencepdf.ashx
day," he said "all schools will be built like that". But not if we listen to Chris Gerry (see case study 05, page 93). And not if we look at the perhaps most frequently held exemplar design for a school – Hellerup in Denmark which, like Gerry's desire for a "B&Q shed" externally looks, not like a Tesco store, but one of its distribution warehouses. And whilst many fear the effective return of the CLASP<sup>78</sup> approach which was deployed after the second world war in the UK, the precise design solution (or solutions) will clearly be subsequently detailed and those involved in delivering education environments will need to ensure they build on what has been learnt throughout the 7 years of BSF.

Nobody to whom I have spoken subsequently would seek to defend any of the aspects to which Michael Gove referred in his announcement to the UK House of Commons on 5<sup>th</sup> July 2010. Nobody, except perhaps the opposition politicians who had, in government, supported the programme fully endorsed the process employed. In 2009, the UK National Audit Office found the cost of building schools to be £1,850 per square metre<sup>79</sup>. This could compare to around £105 (\$164.50) in America<sup>80</sup> although a more realistic, and comparable figure is £500 – still less than one third of the cost. "Given the massively flawed way in which BSF was designed and led," stated Gove in his announcement to the House of Commons, " it failed to meet any of its targets. BSF schools cost three times what it costs to procure buildings in the commercial world, and twice what it costs to build a school in Ireland. "<sup>81</sup> In May 2010, Mukund Patel, formerly Head of Schools Capital at the UK Ministry of Education's (then named) DCSF joined Irish construction company,

<sup>&</sup>lt;sup>78</sup> Consortium of Local Authorities Special Programme – the designs were largely steel framed buildings with hung, timber or concrete panels

<sup>&</sup>lt;sup>79</sup> http://www.nao.org.uk/publications/0809/schools\_for\_the\_future.aspx

<sup>&</sup>lt;sup>80</sup> http://www.reedconstructiondata.com/rsmeans/models/high-school/

<sup>&</sup>lt;sup>81</sup> http://www.publications.parliament.uk/pa/cm201011/cmhansrd/cm100705/debtext/100705-0002.htm

Sammon Group who utilise off-site volumetric construction methods to complete projects in as little as 90 days. Did he know something we didn't? Did he anticipate what would happen?

In January 2011, reports surfaced that Christ the King Centre for Learning, in Huyton, rebuilt (at a reported cost of £24 million) and opened just two years earlier on 5<sup>th</sup> January 2009 would close due to falling pupil numbers. Good news, surely at the Department of Education as proof positive that BSF had failed?

Perhaps if, once done, the review encourages us to re-engage with the interior, rather than the surrounding weatherproof envelope of the space this will be no bad thing. Perhaps, if by removing the option of a bespoke, *Savile Row* solution for the building and instead rely on a *High Street*, off-the-peg solution, greater time and energy will be available by the school and authority to concentrate on the areas with which the students have greatest physical contact, that too will be positive. Perhaps the future is bright?

Let's hope so. Because every little helps.

## 8 SOME WHO HAVE GONE BEFORE

All too often, after a three-hour meeting, the last ten minutes of which had been scheduled to discuss furniture and equipment, but which had been over running by 8 minutes, it felt like I was ploughing a lonely furrow. Never one short of a word, my skills at speaking with the speed of a horse racing commentator became honed to a fine art as we tried to squeeze what was already compressed into ten minutes, into two instead.

But not a bit of it. Whilst many of the headlines were hogged by large, glassfronted buildings, quietly in the background people were busy creating inspiring interior environments for students to work in. A few are presented on the following pages of case studies.



## REAL and realREAL

During Land Security Trillium and RM's bid for the Birmingham BSF contract in 2008, a workshop was established at *thinktank* – Birmingham's science museum. Such was the success of providing this *sandpit* environment where the *stuff you put in that make buildings into schools* was put together to create functioning learning settings that RM restaged a developed version of it at BETT in 2009 following this too with a permanent space in their headquarters in Abingdon. But what is specifically relevant about REAL, I believe, is that it has never occupied bespoke educational architecture – now being housed in unassuming, pedestrian, and frankly underwhelming *spec* office space on an industrial park under the lea of Didcot Power Station.

REAL was conceived by Myf Powell of RM as an holistic space – created to investigate and demonstrate the interdependence of the various components within the space in order to support teaching and learning. But this simple statement belies the detail that is necessary within the space in order to successfully deliver it. "We wanted to create a place to stimulate discussion about the use of furniture" said Powell. "A lot of it is about integrating power and data management. In a lot of schools, simple things like cable management have not been considered and the furniture has been ordered separately from the IT. Often they are left to the end of the process and that limits the options." This silo approach as discussed previously in *The nuts and bolts of it all* (page 52) had become a characteristic of many major capital projects of that time, with the resultant dilution of the effectiveness of the space. As such it was considered absolutely necessary to demonstrate an holistic space working, and in which students were brought for day long project-based learning opportunities.

REAL was extended in 2010 and, at the time of writing, includes four discrete teaching spaces opening onto an open plan, shared "break out" zone, equipped and furnished to provide a blend of environments to support different types of teaching and learning. The teaching spaces provide a spectrum of environments, from traditional through to agile, discovery and sensory and in each space what has been provided has been selected, not because it's the latest, whizziest piece of technology 'bling' but because it enables the style of learning the space is designed to deliver. "The idea has been taken up" suggests education commentator, Merlin John "because it helps with one of the most challenging parts of the new-build and remodelling processes after school communities develop their visions for learning (what they think learning should be for the next 30, even 40 years). It's known as mapping the pedagogy to space - designing the physical spaces that will support the vision. And everyone at the heart of this work now understands that 'settings' are crucial for these spaces."<sup>82</sup> Hannah Jones of the NCSL<sup>83</sup> agrees. "Years after the first Building Schools for the Future projects began," she complains "we are still concentrating on creating innovative architecture at the cost of creating formal and informal learning spaces that contribute more directly to the day to day learning that takes place. Furniture is the basis of where our learners spend more than 80% of their school day, and at the moment it is still too much of an afterthought, rather than being one of the first thoughts of the design process."

realREAL was created in an old gymnasium and opened in September 2010 at

<sup>&</sup>lt;sup>82</sup> John, Merlin; March 2009, Futurelab - All aboard for an IKEA of learning spaces

http://www.futurelab.org.uk/resources/publications-reports-articles/web-articles/Web-Article1224 <sup>83</sup> National College for Leadership of Schools and Children's Services; Hannah Jones is (2010) Special Projects Director for BSF and PCP

Twickenham Academy, sponsored by Swedish secondary school provider, Kunskapsskolan (see case study 04). Seeing REAL, Twickenham's Principal, Nick Jones saw immediate links with the Swedish model of providing a choice of spaces for students to colonise depending on the personal learning preferences. And whilst Twickenham was being built using the Academies framework, Jones was keen both to explore how the spaces worked with his students, as well as demonstrate to them ways in which the delivery of teaching and learning within the new academy (which replaced Whitton School) would take place.

"This room does say that you can do a lot of imaginative things in the fabric of an old building" says Jones after the space was opened (it was described by Peje Emilsson, the founder of the Swedish sponsor, as "very Kunskapsskolan"). He went on to say "This is about creating different types of learning spaces; spaces where young people can work together in large groups, medium size groups, or in the pods in threes or fours or half a dozen students, to work collaboratively ..... I think the children are really excited and enthused about using this space and they look forward to their learning and go "*wow*" when they go into the space. And it lifts them and they feel good about themselves and their learning and spaces can do that if they're well designed and that really helps you and gives you a head start with learning"



#### LAMPTON SCHOOL HOUNSLOW

When I asked Juliette Heppell what any of the students who had been involved in the design of Lampton's I dream of learning classroom had taken from the process, she didn't hesitate. "Firstly" she told me "parents came up to me telling me how their children had taken more responsibility for their homework, doing it in the dining room rather than sat on the sofa with the television on in the background - they were thinking about their learning spaces". Secondly, an instance where one of the students had been involved with a serious disciplinary instance. Having already come to her and apologised, saying he felt he'd let her down, he returned the following day admitting, despite the impact this would have on his reputation amongst his peers, that everything the group had said the day before had been a lie. "When I asked what had made him own up", she said, "he told me that he knew, from his work on the project, that we're all responsible for our own actions". The student felt that if he'd perpetrated the lie, he would have been no different to the people who, throughout the project, he felt had obstructed its progress.

Learning to negotiate, to reflect and compromise was, however, probably one of the greatest benefits the project brought the ten students at Lampton who came from different backgrounds and had vastly different abilities including gifted and talented, special educational needs as well as students with behavioural issues. They also learnt that things take time. Entering the competition, which was run by Feltham City Learning Centre in March 2009, the majority of the construction work did not take place until the summer of 2010, with the classrooms unlikely to be open until early 2011. The space is unassuming in extreme – two adjacent portacabins which, prior to the refurbishment the students described as "cramped, claustrophobic, plain, simple, dull". In a word, "boring". Researching colours, the effect of light and © 2011 James Clarke

acoustics, the students put together detailed proposals which they then negotiated with the school's senior leadership team prior to their implementation. Throughout this process, they also developed them, for example changing the original proposal for an Astroturf floor (because everyone likes to be outdoors, so why not bring it indoors?) to a vinyl floor, with a map of the world in half the space and coloured for use with value continuums in the other, so it also had an educational value. "I hadn't expected them to be as reflective" said Heppell, but the students went away, researched further, and either changed or abandoned their plans. There were lost battles - the students had wanted different coloured low voltage lights rather than the fluorescent strip lights that existed, but this was vetoed by the school from an ongoing cost and maintenance perspective. "This had been hugely important for them" lamented Heppell, "and came at a time where they were still fighting to avoid having a plain floor" (which the building manager had wanted) as well as looking to the school for help with acoustic costs one of their original rationale for the Astroturf floor. "So we took a pause. A month away from the project as they were now disillusioned and downhearted" But during this month they researched further and came back with more suggestions to work around their previous rejections.

Now too with a greater empathy for the teaching staff, the students finalised their plans for the double classroom space in summer 2010





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### KUNSKAPSSKOLAN NYKÖPING

Right from day one, architect Kenneth Gärdhestad was involved in Kunksapsskolan – established in 1999 by Peje Emilsson to run state schools in Sweden and which receives funding via the *voucher system* that operates there (whereby funding for a child's education follows them to whichever school they chose). Emilsson, who helped run a Parisian Montesorri nursery before establishing a successful PR business, instinctively felt that "the onesize-fits-all model did not offer the kind of challenges and stimulation young people need"<sup>84</sup>.

"The outside of our schools" says Steve Bolingbroke, Kunskapsskolan's UK Managing Director (the company is opening academies in Twickenham - see case study 01 - and Richmond in September 2010, and is negotiating running others, including Holywells High School in Ipswich) "may well be pretty grim. But they're irrelevant because we put all our energy on what happens inside". And since, for example, a prime tenet of Kunskapsskolan's educational model is giving students choice, so too does the architecture - there is always more than one way to get somewhere in the school. "There's some deep philosophical thinking in the buildings" says Bolingbroke of Gärdhestad. Nyköping, 60km north of Stokholm is one of his favourites, because "it works so well" even though it was converted from a light bulb warehouse (Kunskapsskolan have also converted cavalry stables as well as office buildings – they have only recently completed the construction of their first purpose-built school building). And despite this, it includes "little stables in social spaces<sup>85</sup>" - relatively dark recesses off the buzzy editorial office - a large open room "where pupils and teachers work together and the person

<sup>&</sup>lt;sup>84</sup> http://www.tes.co.uk/article.aspx?storycode=2635239

<sup>&</sup>lt;sup>85</sup> http://rubble.heppell.net/heppell/postcards/series\_one/sweden.html

who needs help always has somebody to ask"<sup>86</sup> which are ideal for individual study with computers.

The Kunskapsskolan principle (the phrase translates, literally, as *knowledge school*) is that as all students are individuals, they all need to find their personal learning style. "The fundamental principle behind our method of learning is the conviction that all pupils are different and that they learn in different ways and at different rates, and that it is the school's task to meet these differences"<sup>87</sup>. Tutors help nurture and direct students as well as set goals, and all their work rests on a web-based portal enabling it to be tracked both by students' parents as well as the company (using a common *back office* to all schools) therefore meaning that intervention is provided when necessary. And because of this, the schools are deliberately planned with a number of different environments for students to choose to work in – both open plan and cellular, for individuals or groups up to 20 students, as well as large lecture halls.

Bolingbroke has suggested the conversion of non-education buildings in the UK, including Post Office Tower "A school on top of the Post Office Tower would be a great place for kids to understand the geography of London. How great [that would be] - having a lesson about the geography of London while actually looking at it"<sup>88</sup>

<sup>&</sup>lt;sup>86</sup> http://www.kunskapsskolan.se/foretaget/inenglish/roomsforlearning.4.1d32e45f86b8ae04c7fff281.html

<sup>&</sup>lt;sup>87</sup> http://www.kunskapsskolan.se/foretaget/inenglish.4.1d32e45f86b8ae04c7fff213.html

<sup>&</sup>lt;sup>88</sup> The Guardian, Rashbrooke, Max Tuesday 8 December 2009





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When Rachel Jones, former headteacher of Grey Court School in Richmond, Surrey was asked what she'd do if she won the lottery, her answer was to build another Ingenium. Funded by the UK Department of Education and Skills' "Classroom of the Future" programme and designed by Future Systems (the architectural practice which had designed the Lords cricket ground Media Centre) the result, says Jones "brings a sense of fun and adventure into education. If pupils are motivated in the right way there is almost no limit to what they can achieve."<sup>89</sup>

The spaces were conceptualised in a series of meetings held between all the stakeholders – students from all three participating schools (Meadlands Primary, Grey Court Secondary and Strathmore Special School), teachers, Richmond Authority (who had secured the funding) and the project architect John O'Mara, and were held at Capgemini's offices<sup>90</sup>. As a consultancy organisation, there was a freedom in these offices – you got drinks when you wanted, there was music and a visibility around the space. There was also a lack of stress. "You couldn't have had the same meeting" said Jones, "in the school hall". The result, said O'Mara, was an almost immediate "meld between childhood imagination and the typical Future Systems product – bight-eyed; optimistic." It was, he said, "a perfect marriage".

By the time the Ingeniums were to be installed (they were built from fibreglass, by a boat builder – the first builder went bust and the project lost money, therefore meaning only two, rather than the original three classrooms could be ordered), Grey Court, formerly a Beacon School, was in Special Measures<sup>91</sup> at which point Jones joined as head teacher (she had previously

<sup>&</sup>lt;sup>89</sup> Cyber-lessons at classroom of the future, Mira Bar-hillel And Dominic Hayes, London Evening Standard 22.12.04

<sup>&</sup>lt;sup>90</sup> http://www.youtube.com/watch?v=1cCOA8lgyHk

<sup>&</sup>lt;sup>91</sup> A UK school status determined by the Office for Standards in Education, Children's Services and Skills (OFSTED) when it is failing to deliver adequate educational standards

worked for Richmond authority). Behaviour was poor she asserted, largely because "the kids were bored" but the school worked out of Special Measures in just two terms because "there was nowhere to hide - pedagogy was being talked about everywhere"<sup>92</sup>. More so, the Ingenium had altered the relationship between the teacher and the student - but with the students accepting autonomy rather than anarchy taking hold: teachers were no longer retaining and releasing curriculum content -the timing of which is in their own control, but instead setting students topics which they would study in the way they felt comfortable, sometimes all the same way, other times in different ways with teachers observing and determining points when it was appropriate to intervene either to assist, or to use a students work as an example for their peers. The students too discovered that working collaboratively on one of the five large whiteboards, their work was no longer private, but public. This combined with the informal arrangement of the furniture (there was deliberately only 24 places to sit, so the space could not remain overtly static) meant that the students too had nowhere to hide. In their own words, they became "more open and confident"<sup>93</sup>. The Ingeniums opened in 2005, since when there has been little or no graffiti and minimal theft of equipment. "It's a respected area" says Jones. "The students want to be there."

<sup>&</sup>lt;sup>92</sup> Conversation - Rachel Jones to author 25 08 10

<sup>&</sup>lt;sup>93</sup> http://www.heppell.net/bva/bva3/greycourt.htm





### **V** NEW LINE LEARNING

Marxist historian, Eric Hobsbawm considers that "passing academic examinations ... is exaggerated"<sup>94</sup>. Professor Guy Claxton claims "there is no evidence that being able to solve simultaneous equations, or discuss the plot of *Hamlet*, equips young people to deal with life."<sup>95</sup> Success, for Chris Gerry too, cannot be measured solely by the proportion of his students attaining 5 A-C's<sup>96</sup> "Qualifications are necessary" he says "but no longer sufficient". However, this doesn't see him shy away from statistics - far from it. But he uses them to help him run his schools and affects how he responds to individual students, rather than being interested in them as helping others to supposedly judge the schools. When he conducted MSCEIT<sup>97</sup> tests on his staff, for example, he discovered that a large proportion of them had less than average social competencies. "Hardly surprising" he said "when you consider the solitary situations in which they work". Breaking the *lonely artisan* model was just one of the reasons Gerry devised a school model at New Line Learning (the Academy formed following the amalgamation of Senacre School and Oldborough Manor School – previously ranked 102<sup>nd</sup> and 103<sup>rd</sup> of Kent's 103 secondary schools, with, incidentally, 38% and 12% of their students attaining 5 A-C's) and nearby Cornwallis Academy, which, together, form the New Line Learning Federation. The academies are self-sponsored and the federation is now looking to export its education vision abroad. New Line Learning is located in a particularly deprived area - four students had lost a parent during the 6 weeks prior to my visit; a student too had been killed in a car crash. "Poor people die young" Gerry told me starkly. Believing in the principle that mindedness leads to mindfulness, "intelligence drives

<sup>&</sup>lt;sup>94</sup> The House I grew up in, BBC Radio 4 Monday 2<sup>nd</sup> August 2010

<sup>&</sup>lt;sup>95</sup> Claxton, Guy: What's the Point of School? 2008

<sup>&</sup>lt;sup>96</sup> 5 GCSEs at Grade A to C including Maths and English was, for the British Government, one measure of how successful a school was.

<sup>&</sup>lt;sup>97</sup> Mayer-Salovey-Caruso Emotional Intelligence Test

interventions drives actions", Gerry is under no illusion of the consequences of the success or failure of his school in contributing towards arresting social deprivation. Unlike his neighboring academy at Cornwallis, students at New Line Learning aren't dropped off by their parents in smart cars: so he also saw the need to create places that his students would *want* to come to: when engaging with the Academy's architects Jestico + Wiles, he didn't want to see plans or photographs of previous schools, but instead shopping centres and hotels. He wanted a "normal" environment where students' emotional literacy could be developed and where he could instill social competence in them. To underpin this approach, the school is working with Dr Marc Beckett at Yale University<sup>98</sup> on *life space* which argues that a "person's psychological state influences the social field"<sup>99</sup> and which the academy is using to look at "how children choose their lives and how [the academy] might influence this"<sup>100</sup> and how they can get students to internalise the culture.

Their new buildings are therefore created around learning plazas – only specialist areas such as science and technology occupy separate "destination" spaces. In the rest – large, open plan areas in which up to 120 students can work with four, five, six members of staff – spaces are sub-defined by large items of furniture – reconfigurable tiered seating modules, for example, which provide focus as well as contributing to some acoustic separation, and with commercial, rather than educational quality furniture. Gerry had started looking at larger learning spaces at Hugh Christie Technology College in Tonbridge, Kent whilst he had been headteacher there. And he'd created two

<sup>&</sup>lt;sup>98</sup> Marc Brackett directs the Zigler Center's emotional intelligence unit at Yale. His research focuses on (a) the measurement of emotional intelligence in children and adults, (b) links between emotional intelligence and the quality of interpersonal relationships, well being, and other important life outcomes, (c) the relationship between self-rated emotion skills and actual skills, and (d) testing whether emotion-based skills training can improve personal lives and academic/work performance <sup>99</sup> Kurt Lewin (1890-1947) Psychologist

<sup>&</sup>lt;sup>100</sup> Chris Gerry to James Clarke 8<sup>th</sup> June 2010

trial large open plan learning plazas at New Line Learning and another at Cornwallis – recognising that there was "no plan B" once he'd accepted the investment in new buildings, and that it was necessary to be sure they operated in the way he envisaged. So these large spaces support wireless connectivity and all new students are issued with a mobile tablet PC. Large plasma screens dominate the walls and the lighting can be adjusted to create different moods and atmospheres. The second trial space designed by Gensler (had it not been for the curious procedures which dominated the tendering process for major capital projects in the UK prior to 2010, Gerry would have been happy working with them on the academy new build too) had a more sophisticated grown-up feel to the original plaza, once described as resembling Teletubby land<sup>101</sup> which had been designed by Allsop architects with lime green banana tiered seats and bright red walls.

"The building" he claims "is secondary to the process" which is why, (having been on record as suggesting that many schools "pay little attention to cost models") when he first approached central government for funding to rebuild Hugh Christie Technology College, he asked for just £8.5 million to build a "B&Q style shed". "But", countered the mandarins, "this isn't how we build schools" and instead handed over £20 million. New Line Learning and Conrnwallis were built at a total budget of £68 million; New Line Learning opened to students in September 2010 by which time its exam results had risen to 71% of students attaining 5 GCSEs at grade A-C.

<sup>&</sup>lt;sup>101</sup> The Independent, Thursday, 4 December 2008



# CORNELIUS VERMUYDEN SCHOOL

Designed by Paul Baxter of Nicholas Hare Architects and rated for its overall design quality by the Commission for Architecture and the Built Environment (CABE) as *excellent* <sup>102</sup>, Cornelius Vermuyden School is likely to be one of the last schools built as part of the UK Building Schools for the Future programme<sup>103</sup>, and is scheduled to open in September 2012. "Based on a circulation spine with wings on either side" the design of the school, commented CABE, "is clear and legible; it creates a vibrant central gallery space which successfully expresses the school's specialism. The teaching wings provide a variety of spaces which allow flexible uses and different teaching and learning methods." <sup>104</sup>

Baxter worked hard to maintain largely square proportions to the general teaching classrooms. Detailed planning of various furniture layouts by the bidding consortium's F&E consultants demonstrated his initial assertion and that this proportion gave greatest flexibility, and he arranged these around tapered, shared informal teaching spaces which, widened instead of narrowing to the ends creating a *dovetail* plan whereby these generous shared spaces opened up to large glazed walls linking the internal with the external teaching spaces as well as science laboratories, and these are linked to the sports hall (also accommodating music spaces), the main school hall and a retained building accommodating art and technology via a dynamic double-height 'street' which also acted as an art gallery, reflecting the school's specialism as an arts college.

<sup>&</sup>lt;sup>102</sup> There are four ratings: excellent, good, mediocre and poor

<sup>&</sup>lt;sup>103</sup> Essex County Council achieved *financial close* 90 days following the announcement of preferred bidder, on 30<sup>th</sup> April. The coalition government which took power following the general election of 6<sup>th</sup> May was later to cancel many BSF contracts accusing its Labour predecessor government of following a 'scorched earth' policy with regard to spending commitments made immediately prior to the general election.

<sup>104</sup> http://www.cabe.org.uk/design-review/schools/cornelius-vermuyden

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