

# PLANNING LEARNING SPACES

FOR ARCHITECTS  
DESIGNERS AND  
SCHOOL LEADERS

FREDERIKSBJERG  
SCHOOL, DENMARK  
WHERE LEARNING  
IS IN MOTION





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# PLANNING LEARNING SPACES

We believe the learning environment has a profound effect on the educational outcomes for all pupils. If you would like to join us to improve these environments worldwide we would love to hear from you. This magazine is a not-for-profit journal and is the official magazine for A4LE Europe. It is given free to European members and distributed to 8000 A4LE members globally in e-format. If you would like to contribute articles to the magazine or purchase additional copies please contact us.

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## SOFA SO GOOD

IRENA BARKER  
EDITOR



I remember my school as a grim set of buildings which felt akin to a detention centre for teenagers. Exposed to the flat East Anglian Fens on three sides and the clay pits on the other, we loved our classrooms only for the protection they gave us from the howling winds.

We sat for hours on stiff plastic chairs, trying not to drift off to sleep. If you were lucky you could find a seat next to the radiator that was not graffitied with correction fluid. No thought was given to our happiness or sense of belonging. Children were a teeming mass that had to be controlled, not made comfortable.

But that, dear readers, was the 90s. Indeed, judging by the fantastic contents of this edition of Planning Learning Spaces magazine, change is well under way.

Those who design and run our schools are realising that environment is key. Not just to happiness but better performance in exams and future careers. We are no longer afraid that a strategically placed sofa will lead to academic lethargy; we understand that many children might perform better if they're allowed to lounge a little. But if lounging isn't your way of working, maybe movement is what makes your neurons fizz?

Our main feature of this edition (page 12) tells the story of Frederiksbjerg School in Aarhus, Denmark, a school where everything is geared around encouraging children to respond to their natural urge to move. A vast climbing wall in the main foyer is the most overt sign of this, but the building has been designed so that every floor has

access to outside space. In lessons, children are kept largely on the move, and time sat listening to the teacher is kept to a strict minimum.

Corridors are key too, as Dr Robert Dillon explains on page 22. He urges that they become more than a simple network for conveying pupils to lessons. They should be maximised to tell the history of the school, convey the school's ethos and expectations or even provide exercise points for impromptu workouts.

At Three Rivers Academy, the topic of another feature on page 26, corridors are important too. Consultant Gareth Long explains how the school arrived at a plan where the central corridor became a "street" with views into classrooms through large "shop front" windows. This arrangement, Gareth says, created a more adult space, where teachers do not have to be "the ogre on duty" during lesson changes. Children, at last, are given ownership of their learning spaces and trusted to use them appropriately.

Even though comfort may not always seem like a priority in schools, it certainly is for furniture designers. Our article on page 32 explores how good ergonomics is more than just a "nice to have". It is, of course, essential to good learning. Classrooms, on the other hand, may not be, as renowned architect Trung Le tells Murray Hudson in a thoughtful interview on page 8.

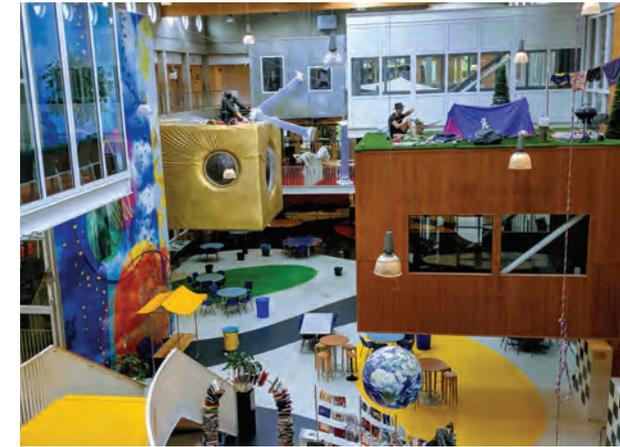
I hope you enjoy reading this edition as much as I did editing it. Read it at your standing desk. Or sitting on a stool. Or stretched out on a sofa. Whatever works best for you.

## AGORA ASSOCIATION LAUNCHED

The innovative Dutch school creates a formal structure for schools following their approach.

In 2013, Sjef Drummen, Jan Frasen, Bert Martens and Bert Sterken met to write the vision for a new school – one that would radically challenge traditional education practices. Twelve months later and Agora Roermond was founded. It now educates nearly 300 students using a pedagogical approach that focusses on students' autonomy – one where students determine their own learning journey supported by coaches, or Agorian Masters.

By the end of this year, there will be 10 Agora Schools (9 are in Holland with 1 in neighbouring Belgium) educating nearly 800 students. They vary in size from one school that has just 13 students to Roermond with 285. With the aim of extending their vision much wider, outside of Holland and ideally influencing governments,



The Agora Association has been formed with the aim of supporting Agora schools, assisting with the recruitment and training of Agora teachers, conducting research and building a network of partners. Most specifically this will be done whilst explicitly involving parents and students. More information can be found at: [www.agoraonderwijs.nl](http://www.agoraonderwijs.nl)

## SMALL SCHOOL, BIG WINS

Learning environments guru Professor Stephen Heppell dropped into Fingringhoe CofE Primary in the UK county of Essex to see how pupils and teachers are using their new Learnometer - which measures classroom environmental conditions including temperature, light levels, sound and air quality.

Supported by Essex County Council, the 88-pupil coastal village school is involved in a pilot project to improve learning environments. They are collecting data via Learnometer devices, raising pupils' awareness of the different environmental factors that can affect their learning.

This encourages them to make adjustments for themselves and is one of a number of improvements employed by the school including the installation of controllable lighting, acoustic panels and agile furniture from Learniture.



Headteacher Suzy Ryan commented: "Now pupils are starting to understand the impact of environmental factors on their learning, they seem to be more aware of when they are focused and when they are not, and appear to be more motivated."

## PISA: ESTONIA IS TOP EUROPEAN COUNTRY IN INTERNATIONAL TESTS

Estonia is the new star of European education, after the publication of the latest results from the Programme for International Student Assessment (PISA).

Teenagers in the former Soviet republic came top in Europe for reading, maths and science in the tests taken last year. Worldwide, 15-year-olds in Estonia ranked fifth in reading, eighth in mathematics and fourth in sciences.

Estonia's success story compares to Finland – long held as a model for good education – which performed worse than in 2015 in all three subjects. However, the Finns are still seventh in the world for reading, 16th in maths and sixth in science.

Scores for some of the most populous nations in Europe were less impressive, although the UK appeared to be catching up in mathematics, jumping from 27th place globally in 2015 to 18th place in 2018. However, British 15-year-olds ranked 69th out of 72 countries when they were asked about their 'life satisfaction', with boys in particular among the least satisfied with their lives.

The factor most positively influencing life satisfaction was a sense of belonging at school – something PISA director Andreas Schleicher claimed the UK "doesn't do so well".

In France, concerns were raised over the finding the country has one of the greatest gaps in performance between the most and least well-off children in the OECD. Spain had a particularly bad year, falling below the OECD average in science and maths. In reading, they're results were not even published after 'anomalies' were detected that indicated students responded unnaturally quickly to the questions – in less than 25 seconds.



## LEARNING FOR LIFE

EU StartUps website recently identified Learnlife as an organisation to look out for now and in years to come. After years of planning and dreaming, Learnlife Barcelona originally opened its doors in 2018.

Thoroughly researching global examples of innovative schools and collaborating with highly regarded thought leaders, Learnlife is now building an open ecosystem for lifelong learning, integrating new learning elements, spaces and technologies that are responsive to the needs and challenges of today's children and future generations.

Dr Stephen Harris, Co-Founder and Chief Learning Officer at Learnlife, explained to Anne Knock during her recent visit there, that Learnlife is seeking to shift the paradigm of school by "providing the opportunity to experience learning within a wider ecosystem than traditional schooling. The community is intentionally a mix of adults and teenagers who are all learners together".

Extending beyond Barcelona, it is building a collaborative learning community through its *digital platform and physical hubs to empower individuals in a world where creativity and innovation will be needed to solve future challenges*. "The wider Learnlife project" Stephen continued, "aims to provide a united platform for people from anywhere in the world who are the active changemakers within their local context."

Anne Knock leads professional learning tours for educators and architects to Europe and North America [www.anneknock.com](http://www.anneknock.com)

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PLANNING LEARNING  
**SPACES**

Ten years after the seminal book *The Third Teacher* showed how design could help transform education, Murray Hudson met contributor and architect Trung Le at the Art Institute of Chicago to reflect on the decade.

## TRUNG LE

### CHALLENGING THE CLASSROOM STATUS QUO

**MH: What impact did *The Third Teacher* have when it was published?**

TL: Our work confirmed that there was a serious conversation happening about education, that there was a subtle but powerful shift – not about teaching, but more about learning.

It's interesting how you can walk into a school and see their attitude is more about teaching than it is about kids and learning. It has permeated adults' way of being, their way of interacting with each other and certainly their way with the kids. We just highlighted what was already happening.

**MH: When you began work on *The Third Teacher* you were strongly influenced by Professor Stephen Heppell. What was so radical about his ideas for classroom design?**

TL: Now that I'm looking back, it was quite extraordinary how he was challenging how we perceive the way we learn. The way we set up a classroom dictates the way we learn but classrooms were typically more about the way teachers wanted to teach.

When it came to designing schools there were dogmas he wanted to challenge — one was the self-contained classroom linked by endless corridors. He challenged me to design a school without corridors. This wasn't driven by any architectural need, it was driven by schools having been designed the same way for so long that it baked in behaviours and attitudes about how to behave and act in school.

**MH: What is your vision for the perfect classroom?**

TL: My perfect vision of a classroom is that there are no classrooms and that we never refer to a classroom again. It opens up many things, like the place we are today — The Art Institute of Chicago. It's funny that we create places of learning like this and only once in a while do we take our kids there. Ninety percent of the time they sit in a square room.

**MH: Is the classroom really destined for the dustbin?**

TL: True, I do think that a sense of place is important and the institution we call 'school' is still important. Starbucks, for example, keeps data on the flow of traffic through their stores and saw there was a spike the day after 9/11 — people needed to be with others to discuss things. Maybe we can go back to the idea of sacred spaces like churches and plazas that connect people together. Imagine if a school is not a series of self-contained closed classrooms but a place of exploration and wonder. We create these spaces all the time, we just don't call them schools.

**MH: The title of the book, *The Third Teacher*, comes from an Italian educator's premise that children learn not just from adults and peers but their environment as well. Increasingly technology plays a role — are there any aspects of technology that concern you?**

TL: I asked my son about this the other day. When you went to a playground there are many things to play with, to swing, bat or ball, he told me. In our generation, he said, the virtual world is our playground.



**“MY PERFECT VISION OF A CLASSROOM IS THAT THERE ARE NO CLASSROOMS AND THAT WE NEVER REFER TO A CLASSROOM AGAIN.”**

I'm not worrying about time they spend online, it's what they're doing online. It is pretty amazing you have access to the entire sweep of human knowledge — that's super powerful. Yet there's bad stuff on there too. We need to teach them skills to navigate this world. We adults are having a problem with the alternative facts out there as well. That's the era we're all entering, not just our kids.

**MH: How do you measure success when it comes to education?**

TL: That's an ongoing conversation. There obviously needs to be assessment but more and more there's an observation that testing students is not the best way to do that. It's very static and it measures only one thing — the success of learning and ultimately the success of the institution. I don't think that's been resolved yet but there's some conclusion that over-testing results in disengaged kids. There are examples of this, in South Korea they are academically highly successful when it comes to testing but you also see higher rate of depression and suicides. In the US, there are kids going through the same thing.

**MH: Is the stress felt by students and teachers to some extent self-imposed?**

TL: Sure. It's the only game in town because they need to have certain numbers in order to advance to the next level of this game we call education.

**MH: Are we approaching a crisis in education?**

TL: I think we're on the tip of a dynamic and turbulent period and long-standing norms are being questioned. One is the cost of higher education. The 20th century norm of starting kindergarten when you're five until you're 21 or 22 coming out of college and ready for a career is coming to an end. Educators know that. The entire population is not being elevated, it's only a certain portion of society and that gap is starting to widen. At some point I think young people and more informed parents will question whether college is the only path to success. When I visit incubator places and see young people starting tech businesses, I see this is possibly another path to making a living. I think there is a new emerging path starting to take root.

Most private schools are struggling with their value proposition — \$40K to send your kids to kindergarten, \$60K if you go to Northwestern or University of Chicago. Spending that kind of money to leave higher education with such debt, especially in the States? As a parent I'm saying either I'm going to invest \$50K in your education or why don't I take that money and we start a business together, or I'll fund that business. I think we're hitting the third way.

The other thing is the impact of technology: we're a few years away from artificial intelligence and there won't be enough jobs to support college graduates. I see the intersection of those two trends already happening.

**MH: Tell us about artificial intelligence?**

TL: Machine learning will be able to do things that are repetitious so much better than human beings. Anything you can codify can be replaced — that's not just the welder being replaced by a robot. That's doctors looking at x-rays, lawyers reading pages and pages of text, accountants looking at sheets and sheets of numbers. All those patterns that machines can do faster, more efficiently and better than us.

**MH: How do you sleep?**

TL: I have four kids and I sleep because I continue to follow people perceived as radically optimistic. I think given the choice, if we don't have to work 40 hours a week to earn a living, maybe we work 20 hours — but we choose to do something valuable with that time. Once we learn to live, there's a sense of how do we contribute to society. That for me is comforting. That's the great quality about human beings, for the most part we do really remarkable things. I think you've got to be an optimist but it's active optimism — which means that we actively participate in the conversation and implement change rather than just waiting. That's the cool thing about being a designer, we have the power collectively to do something good. ■

*Murray Hudson is the co-editor and contributor to Planning Learning Spaces, published by Laurence King Publishing. Out now.*

# Gratnells

# Learnometer

## Helping improve learning outcomes

The Gratnells Learnometer is a device developed in partnership with Professor Stephen Heppell and his research team to measure and monitor classroom environments, allowing the optimal conditions to be maintained for improved learning and achievement.

**Professor Heppell says, "Our research, and others', confirms that poor light levels, the wrong temperatures, inappropriate sound volumes and rhythms, humidity, air pollution, CO<sub>2</sub> and air pressure can all impair learning. Our Learnometer research tool automatically samples your classroom environment, and makes suggestions through a unique algorithm as to what might be changed to allow students to learn and perform at their best."**

The Learnometer records data, stores this data in the cloud, and produces dashboard reports, allowing the user to get instant readings, as well as monitor trends and compare locations with differing environmental factors.

As a constant monitor, visible within the classroom, the Learnometer will also provide the ideal opportunity to engage students in discussion about environmental factors, and can even be used to launch a variety of classroom based STEM projects.





## BAREFOOT NINJAS LEARNING IN MOTION

An experimental, innovative design to create active learning spaces, the Frederiksbjerg School in Aarhus, Denmark is built for play. In this school, walking is the least common form of movement. Aaron Hathaway explains why.

An autumn breeze is blowing leaves into the gutters of Ingerslev Boulevard, a wide road running past the brick façade of Frederiksbjerg School.

Children run into the heaps of leaves to gather handfuls; some already have them tangled in their hair.

As they chase one another through the school's multi-levelled playground, they cross different zones of age and activity; early teens play a spirited game of basketball; primary level pupils chant along to a skipping routine; six-year-olds inspect the ground for noteworthy bugs.

Under a cool grey sky, the clamour of play announces the school from several blocks away.

The Frederiksbjerg School is perhaps the only school to have had a multifunctional 'ninja track' assault course included in its blueprints.

Its design reflects an educational approach emphasising physical activity: 15,000 m<sup>2</sup> (161,500 square feet) of interior spaces and outdoor playgrounds offer students 100 different ways to move throughout their day.

The average trip between classrooms takes students up climbing walls, through Twister grids and down dual-lane sprinting tracks.

A collaborative design between school administrators, Aarhus city officials and Copenhagen architecture firm Henning Larsen, Frederiksbjerg School is an experiment in education: educational policy and physical design work in tandem to explore a more mobile model for learning.

Daily schedules and classroom layouts support a curriculum rooted in mobility, giving the school's 960 students a greater role in determining how they learn.

Here, physical form reflects pedagogical philosophy; a new approach towards creating healthier learning spaces. Movement is in the building's DNA.

#### Creating space for movement

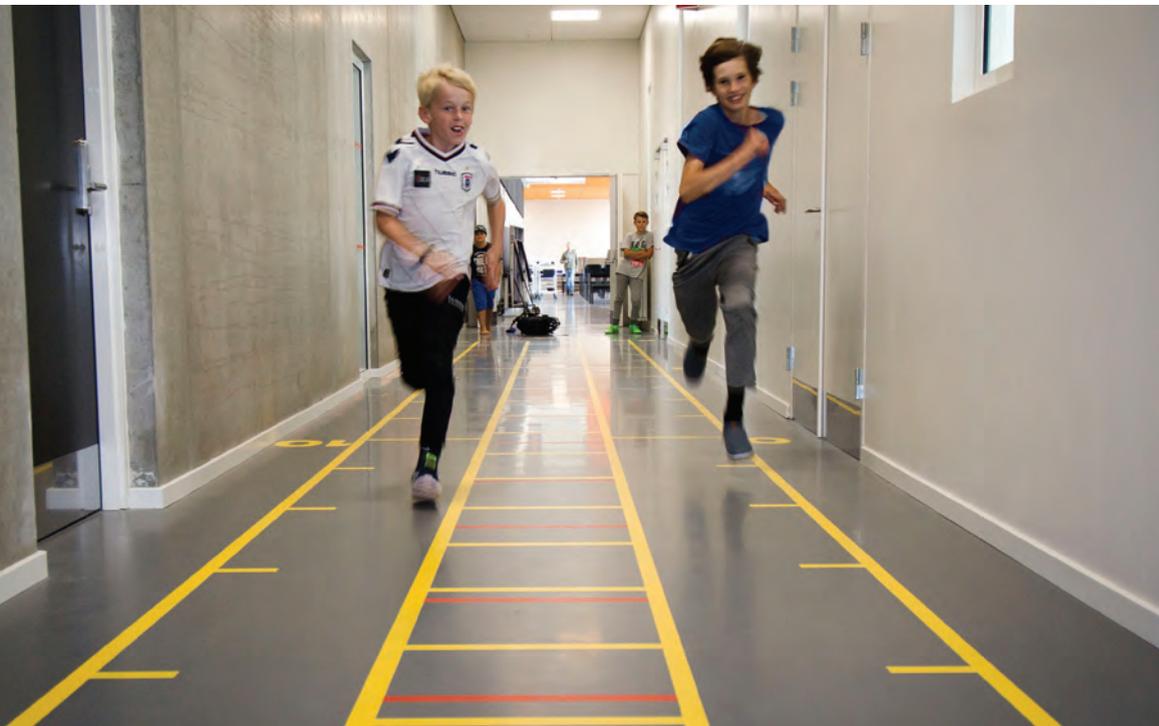
Gathered for a morning meeting in a classroom of Frederiksbjerg School's elementary wing, 25 pupils sit where they please.

Some line up in orderly rows on stepped benches, some curl up in the classroom's window seats.

The session lasts no more than 15 minutes, nearing the maximum time limit students can concentrate whilst sitting stationary.

The curriculum itself prompts students to migrate between the communal blackboard, collaborative work tables and quiet rooms for individual study.

The classroom has been purpose-built to subvert the traditional static rows still found in the majority of schools.



Jette Bjørn Hansen, principal at Frederiksbjerg School, says that dismantling a stationary classroom model is a learning experience for students and teachers alike.

"In a way, it's a paradigm shift. We're moving away from the old school model, where the teacher stands at the front and runs everything," Hansen says.

"This new structure trains the students' independence. They know that they're meeting back together after 20 minutes of group work, so even the younger students learn to look at the clock and keep track of their time."

Hansen serves as principal in the space she helped create. She was part of the project group that developed a pedagogical vision to guide the construction of the new school, which opened in 2016 as a replacement for the aging St. Annagade School.

Together with other school leaders, city officials and input from over 50 members of staff, the project group proposed a school whose physical form would allow students to engage with learning spaces on their own terms.

More energy burned outside of class means less energy to fuel restless students during lessons.

Versatile interior spaces allow students to find their best space for learning. For Hansen, the pedagogical philosophy supporting this vision comes from both solid research and common sense.

"If you sit still for too long, your brain will fall asleep. It's like a light that switches off," Hansen says. "Moving your body is the best way to keep your brain awake — students are better learners when they stay active, and they tend to be happier about learning."

Hansen is one of only a few at Frederiksbjerg School who enjoys the privilege of wearing shoes.

Students' outside shoes, boots and mobile phones are prohibited; to be stored in personal lockers throughout the day.

The 960 pairs of stocking feet illustrate the way that ongoing school policy enables the fullest realization of the school's initial vision.



Students need not pause to unlace boots before scaling the ground floor climbing wall, and can freely crawl into classrooms' recessed windowsills without tracking dirt on the walls.

Philosophy informs policy, and policy supports philosophy. The no shoes rule allows students to best engage with the school's philosophy of motion — and, Hansen believes, acts as a social equalizer.

"We saw that when the students don't use shoes indoors, they are friendlier with one another. When you don't get to be a tough guy in big boots or a special girl in high heels, everybody is more equal," Hansen says.

#### **Balancing work and play**

A sunlit central atrium forms the nucleus of the school's daily activity.

It encourages relationships between the school's 960 students; a common space for kindergarteners and teenagers to share in sock-footed parallel play.

Classrooms on the school's four levels stratify students by age: On the lower levels, younger students are grouped by age into clusters of learning spaces encircling a common room; higher up, students shift between subject-specific classrooms.

The central staircase is split between conventional steps and a climbing wall, another staircase resembling a half-finished Tetris grid challenges students to ascend in careful leaps.

Diffuse daylight in the atrium illuminates details of a playful graphic identity: portholes embedded in the walls at the average height of an eight-year-old reveal detailed dioramas of domestic scenes.

Shakespeare quotes are written on the walls of English classrooms in a custom font and there are custom labels on litter bins.

Sounds of study and play reverberate within the four-level atrium, encouraging a sense of unity between the school's age-stratified layers.

Shortly before noon, students spill out into the atrium to pass between classes, plunging the school into adolescent bedlam.

Students trailing book bags burst out of classrooms in skips and sprints, careering around corners and past hall monitors. Walking appears to be the least common form of transport here; friendly horseplay goes largely un-scolded.





Installations such as ping pong tables, climbing ropes or the dangling handholds of the multifunctional ninja track provide a physical outlet for exertion. But the school makes a place for calm too: curtained reading nooks and high-backed couches offer sheltered respite from the surrounding energy.

On the third floor, five girls chat quietly at a communal table as one boy drags his companion past by the leg, stomach squeaking on the polished floor.

These microcosms of fevered activity and thoughtful solitude exist in unlikely equilibrium, a balance which sums up Frederiksbjerg School's educational philosophy.

Compared to the monastic order encouraged in traditional school hallways, the tolerance for spirited play at this school might be seen as incompatible with focused learning.

But the support for activity at Frederiksbjerg School takes root in the belief that this exertion is a necessary component — perhaps a precursor — to learning.

"Of course some students still have problems with being disruptive in class, but they'll still have that if you try to keep them calm throughout the day, and they might get even more restless," Hansen says. "We try to take steps to allow students to move as they will. It's natural for the body to be in motion, and we want to create the right space to bring that out."

#### Light and learning

Inside classrooms, students learn on their own terms. Room layouts, furniture choices and lighting options emphasize versatility, adaptable to different purposes and atmospheres.

Driving this dynamic design is a desire to accommodate alternative learning preferences. Students with learning disabilities, or those who simply find themselves restless during class, have the option to leave class for what Hansen terms a 'power break', a brief five-minute recess to let off steam and return renewed.

Frederiksbjerg School collaborated with Henning Larsen to explore the role of interior lighting in creating more comfortable classrooms. Moving beyond the fluorescent tube light native to so many offices and schools, they instead installed hanging pendant lamps in classrooms.



This enables students and teachers to activate softer, focused lighting around communal work tables.

Over a period of eight months, the team found that classes gravitated to the pendant lamps for quieter activities, such as reading and mathematics and they made an interesting discovery:

In 70 percent of situations when the lamps were on, average noise levels in the classroom were measurably lower. Imke Wies van Mil, a Ph.D. student with Henning Larsen specializing in artificial lighting design, suggests the adaptable lighting may help the classrooms suit a wider range of learning preferences.

"I think what we generally do is flood classroom spaces with the same type of uniform light. This might not be a problem for the average student, but if there's a student who is more easily distracted, or just has a different

visual comfort level, the full lighting could be distracting," Wies van Mil says.

"We heard feedback from teachers who felt that the pendant lamps made the biggest difference to these more restless children. So you can see it in more of the extremes, but this works through to the whole class — if the disruptive student is less disruptive, the whole class feels it."

#### Room for all

Two years after its doors opened the Frederiksbjerg School remains one of the only examples worldwide of a school purpose-built to suit an active educational vision.

The physical design provides a learning environment that allows students to exercise motion and autonomy.



For many students, the school is the first formal educational setting they have experienced, and it stands out as one with greater room for personalized learning. Hansen says that she hosts at least one group of visitors every week, drawn from across Europe and Scandinavia to tour the premises.

No formal studies at Frederiksbjerg School have yet substantiated the emerging scientific support for physical motion in schools, but Hansen says she notices a difference in this new learning environment.

"I think students here are more motivated; they have more control over how they learn and they stay active. From that, I think they must learn more. But I also see them learning beyond the classroom, developing skills that would never show up on a standardized test."

Hansen says. "I think it's too early to take data and look

for concrete improvements. We are going for life-long learning, instead of getting ready for exams."

Every Wednesday evening, a group of adults arrives to practice Brazilian martial arts in the third floor dance studio. The local capoeira club is part of a community network that keeps the school active long past the end of the school day, from afternoon Italian lessons to weekend basketball on the outdoor courts.

Though the visiting adults might opt to take the stairs instead of the climbing wall, their presence affirms the school's wider role as a community focal point; a space that offers benefits far beyond the school day.

The Frederiksbjerg School is in perpetual motion: It stands as a proof of concept for active and open education, a suggestion that learning is sometimes best in stocking feet. ■

# Planning Learning Spaces

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## MAKING THE MOST FROM THE SCHOOL CORRIDOR

Dr Robert Dillon, leading education space designer, explains how.

As designers of space, it is essential that we see all space as a potential place to guide learning.

Students are learning every moment of every day. They are refining their ideas and beliefs. They are adding to their understanding of the world.

Some of these moments are guided by parents, teachers, and mentors while other moments remain under the sole direction of the learner.

In schools, we have focused for a long time on the power of classroom design as well as areas such as libraries, learning labs and playgrounds.

But as we look more comprehensively at space, it is clear that the area dedicated to corridor space in many schools shouldn't be ignored.

It needs to be designed with intention. Consider the ideas below that have been shown to be effective in turning hallways into more structured spaces for learning.





### Tell the history/explain the science

Every space has a history, but the new often obscures the past. Many schools unearth the history of the school through displays and plaques. These efforts often fade into the space and become invisible, but creating a living 'history tour' throughout the building via excellent signage can be a way to unpack the past so that students understand the context of the space in which they learn.

These signs can answer questions about what was on the land before the school, why the school has its name, the different phases of building construction, details about the first students who went to the school and so many other facts that grow a community understanding of the school.

This can also be done for the science behind the building. Signs would include the details of efforts to be sustainable with energy, water, recycling, and more. These efforts create a greater sense of community within the school and beyond.

### Displays as a storytelling device

What is the non-verbal story of your school? When someone walks around the building after the bell, what do they see? Hallway displays can help shape the learning narrative of a school.

Some of these provide a glimpse of the hard work of the school pupils and staff.

Yet others feel like they have been filled for the sake of avoiding blank space. Consider a display strategy

based on mission and purpose. What three or four concepts do you want the displays to represent?

Think about having the right mix of static, dynamic and digital displays. Static displays allow you to anchor your message with language and objects that have a life span of three to five years. Dynamic displays showcase the hard work of students, including images of students learning.

They are designed to remain alive and fresh for our frequent visitors to the building.

Digital displays allow you to showcase the true essence of the school through images and video.

Many schools have a single digital display, but consider a more wide-ranging strategy that includes displays throughout the building that are text-light and image-rich.

### Growing the tactile nature of the space

What is good for the students on the edges of formal learning is almost always good for all kids. This is especially true for adding tactile elements to the design of hallways.

Many students that move through the hallway with their hands touching the wall are looking to reset and reorient their balance.

By providing opportunities for tactile interaction in the hallways, schools can support a variety of student needs.

For too long, this work was trapped in the spaces designated for occupational therapy, but when they are a whole school effort, all students can reap the benefits. Textures on the walls allow students to self-soothe, calm, and reset.

Some schools are placing objects for interaction along the walls that encourage students to interact in a physical way with the wall spaces. In other schools, we see the walls retro-fitted with curves or a variety of materials that give students a tactile experience.

Be strategic with this work as it isn't about creating a fun house of distractions.

However, you can provide a series of stations that meet the needs of both students with special learning needs and those suffering from stress and anxiety.

### The healthy hallway movement

In many parks, you will find fitness equipment that allows visitors to take part in circuit training. This model is being brought into many schools who see their corridors as a great opportunity to push their healthy movement mission. Depending on the size of the school, 8-12 stations throughout the building can create hallway spaces that increase movement and physical well-being. These stations can be used with individual

students that need to reset, classes of students looking for a 'brain break', indoor break activities and for small groups. It is essential that each of these stations describe the activity and scaffolded options, a description about why the activity supports physical and mental wellness, and images of students doing it correctly.

### Images of learning

In too many schools, visitors, students and parents travel a long way into the school building without seeing images of the modern learning experience. By placing images of students learning throughout the hallway spaces, there is a clear message that this is what excellent behaviour looks like in the school. Along with this visual reminder, it can create excitement about active learning for students. Images, strategically placed, can create an energy and joy in the space as well.

A comprehensive hallway strategy threads together the work being done in the classrooms that are attached to the hallways. These efforts enrich the mission, reinforce learning, and provide students with social, emotional and academic learning opportunities throughout the school day. ■

*Dr. Robert Dillon, is the co-author of 'The Space: A Guide for Educators' along with Rebecca Hare.*



## BRIEF ENCOUNTERS

Three Rivers Academy's striking building has received numerous plaudits since it opened its doors last year. Consultant Gareth Long explains how the school arrived at a design that meets all its needs.

It all started with a phone call.

The caller, the business manager of what was then Rydens Enterprise School in Hersham, Surrey, said that they were selling some land to fund a replacement school building. The value of the land, close to London, enabled them to be ambitious and innovative, they explained. The school had heard that our consultancy — the-learning-crowd — provided education support to new school design projects and wanted to know how we could help.

But their second question was: "Can't we just leave all aspects of the school design to the architects?"

A series of meetings followed between the headteacher and myself.

There, they started to appreciate the real importance of having a detailed document that explained their carefully thought out vision for the new school.

This included their pedagogical approaches, operational considerations, the types of spaces that were needed, their approaches to cross-curricular working and how the community was to be involved. We also explored other places they had visited, design ideas they liked as well as those they did not.

The school soon started to understand that the huge amount of work put into planning before the project started would make the design stages so much more efficient. Architects would have access to all the key facts and not waste valuable time in design sessions by asking about operational factors such as storage, lockers, staff spaces, student toilets and so on.

Their ambitious plans were a very big move away from the existing situation. The school did not have the best reputation, and it was surrounded by several prestigious private schools. The bleak buildings were really not fit for purpose: they included a large, sprawling collection of traditional brick blocks with numerous quadrangles of post-war prefabricated (CLASP-style) buildings usually joined by extensive walkways.

Inside were narrow corridors with numerous staircases, corners and alcoves. The size and nature of the site made supervision during lesson changeover and at break times extremely difficult and demanding. The head's office was so far from the rest of the school that anything could happen without them knowing about it. Their vision and aspiration however was exciting. This was to be no standard replacement building.

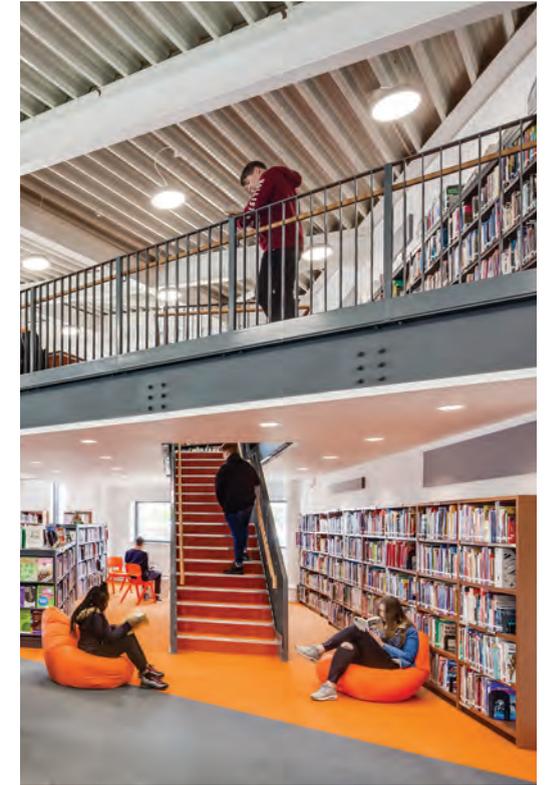
The head was determined to create a first class learning environment in a statement building that looked modern and innovative. The vision was to move from one large sprawling school environment to a model of 'four schools within a school', each with their own identity and housed within a single efficient building. Movement was to be minimised with students largely staying within one section of the school, moving only to access specialist subject rooms and for break and lunch times.

The sixth form was to have its own separate but connected learning zone that supported teaching; independent and small group learning activities, but with easy access to specialist subject spaces. And so, as we worked, a really detailed education design brief was created, outlining all the ideas, vision and aspirations for the new school.

We tried to ensure that it was also pragmatic and realistic.

Spending this time planning made us confident that we could understand how this new approach would work operationally and how staffing could be organised. We analysed the curriculum and thought about how it would be accommodated.





We also looked at ways that design elements could be flexible so that different leadership styles, pedagogical and organizational approaches could be catered for in the future.

The key priorities were to provide an inspirational modern learning environment with each of the four 'schools' having its own identity. It was to be a design that minimised travel time, and improved cross-curricula and cross-phase learning. We also wanted to maximise passive supervision by staff and increase opportunities for community partnerships. Above all, we wanted to develop a building that created an environment that students and staff genuinely wanted to come to.

It was immediately obvious, when interviewing architectural practices, which team had really read the education design brief carefully and considered the many operational aspects of the design.

The successful team from Scott Brownrigg architects had clearly totally absorbed the brief and done a great deal of work prior to the interview. In fact, their initial innovative interview concept design pretty much matched the end result.

There were numerous obstacles as always. The land sale took time to complete, and the ESFA was concerned that our aspirational school building was 'too big', and had spaces not included on Building Bulletin 103. Whilst DfE officials made many positive comments about the design concept, hours were spent in offices in London as they assessed every square metre of space instructing us to reduce areas, remove the odd space and so on. However, eventually the final design was agreed. The result is that Scott Brownrigg have designed a fantastic school building that addresses all the priorities identified by the school.

Importantly, design considerations made were based on solid education and operational thinking as opposed to what would look good. We hope we have achieved both. The building, built by contractors BAM, is certainly eye-catching, extremely colourful, innovative and prominent (even to those passing on the train). Arriving visitors pass through a generous landscaped plaza before entering the building through its soaring entranceway. The only major change was during the build process when the Rydens School was taken over by The Howard Partnership Trust — a multi-academy trust — and the school was renamed Three Rivers Academy.

The design is based on a 'street' model featuring all specialist subject spaces on the ground floor, all with 'shop front' windows into the learning spaces. Four distinct 'blocks' in different colours sit over the

street containing multiple learning spaces. These were originally designed to be separate 'schools' but The Howard Partnership Trust chose to make these into faculty bases, but still differentiated by colour.

Each block has its own collection of classrooms, breakout spaces, staff accommodation, cloakrooms and storage facilities. Teaching spaces have large windows into them to encourage a shop front approach to displaying and celebrating learning. This also allows passive supervision into teaching spaces as well as staff being able to monitor those passing. The adjacencies and use of breakout spaces have ensured space for easy cross-curricular and cross-phase learning activities.

Finding your way around is easy. There are no hidden corners or 'hidey holes' where students could possibly misbehave: even the main stairs are located on the 'street' overlooked from all parts of the school.



Staff offices are located at corners of circulation routes and next to breakout working spaces. Each has very generous windows allowing staff to model good working practices, to easily monitor passing 'traffic' and be easily accessible to students. Dining areas are located along the street with several serving points with a variety of food offerings and with several easy access doors to external spaces.

It is a much more adult environment and reduces the need for staff to have to be the 'ogre on duty' during lesson changeover. Staff are everywhere, and the clever use of glass walls means that students can be seen from almost everywhere. The headteacher's office is central and overlooks the 'street'. A small shared staffroom is also strategically placed alongside a coffee bar accessed equally by staff and sixth form students. Travel times have been significantly reduced. Even the sports hall is part of the building, accessed through double doors.

It was an interesting conversation during the design process as to whether the sports hall should be a separate building in its own right as so often happens. The main concern was that if it was included in the main building the smell of sweaty students and the noise would disturb the rest of the school.

We were also concerned about students getting wet reaching a separate sports hall for PE lessons or

important exams. The final solution, with effective zoning, ventilation and acoustics, combined with a clever use of doors, has removed these issues. An added benefit is that the PE staff feel much more connected to the rest of the school and not isolated in their own building.

The community aspect has not been forgotten. Careful secure zoning arrangements ensure that community can benefit from inside and outside spaces.

"What do the students think?" One told the headteacher: "I feel like I'm coming to university each day". Another student who had experienced the old building said "I'm now proud to tell people I come to Three Rivers Academy".

One of the key messages from the start of this project was how important the initial education design brief had been. Both the architects and building contractor described the brief as "the best that they had ever seen" which made the whole process so much easier from the very start of the project. The old adage rings true; the more work you put into the start of a project, the better the outcome will be.

It is certainly true in this case. ■

*Gareth Long is Director of the-learning-crowd educational consultancy. [www.the-learning-crowd.com](http://www.the-learning-crowd.com)*



## AWARDS

Three Rivers Academy has been very successful and widely recognised, including:

### 2018

- Finalist, Best Student / Student experience
- Finalist, World Architecture Awards
- Listed, Inspiring School Designs from Around the Globe

### 2019

- Shortlisted, SPACES Awards, Civic Building of the Year

## ARE YOU SITTING COMFORTABLY?

Sound ergonomics are not merely a 'nice-to-have' — they are intrinsic to good body and brain function both inside and outside the classroom, writes James Clarke.

### Posture v Ergonomics

Don't be fooled by seats that simply claim to promote good posture because posture and ergonomics really mean two different things. Posture tends to refer mainly to how we hold our body, whereas sound ergonomic principles (whilst clearly impacting positively on your muscular-skeletal wellbeing) affect your cardio-vascular system too. This, in turn, has an impact on cognition.

This was first proved in the first few years of the twenty-first century by the German ergonomist Dr Dieter Breithecker.

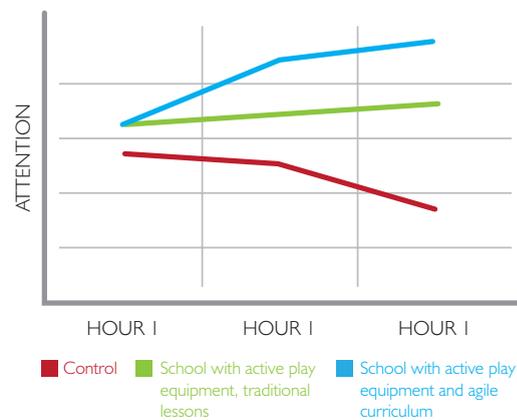
In a four-year academic study (*"The Educational Workplace" What the "classroom of the future" will look like*. Breithecker et al 2005) he proved that when the body is mobile, cognition improves. It shouldn't have been a surprise, because in all other walks of life we're told to be active: we're even told to walk up and down the aisle of a plane on a long-haul flight rather than sit for hours on end.

Breithecker subsequently collaborated with German manufacturer VS in the design of their Panto Swing Chair. Together with the more recent Hokki stool, these designs actively promote movement, and therefore increase opportunities for concentration.

Even when seated, the correct relationship between your thigh and abdomen — one where your internal organs are *not* constrained, isn't the 90 degrees that sitting upright with your upper legs horizontal implies, but nearer 120 degrees — as if you're riding a horse or a bicycle.

Your 'vital' organs, mostly located in your lower abdomen all have arteries running through them, and if they're in any way constrained, oxygenated blood is hindered from circulating around the body and ultimately getting to the brain, and that, in turn, clearly has an effect on cognition.

CONCENTRATION PERFORMANCE VALUE IN THE ATTENTIVENESS STRAIN TEST



Dorler & Breithecker 2003

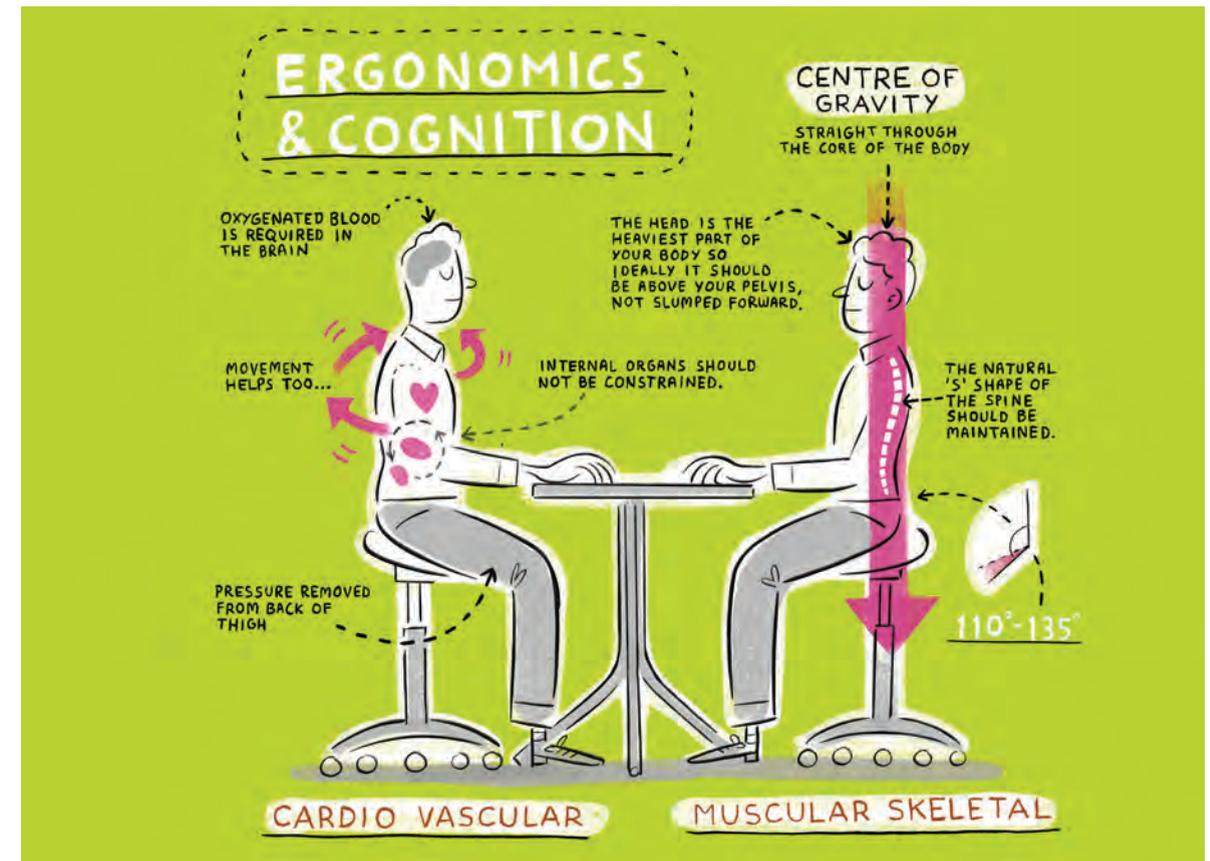
When a student leans back on their chair, they're simply creating this wider angle. They're not being naughty, but demonstrating one of the body's natural, instinctive reflex reactions.

### A little bit of history

In part, the misunderstanding between the correct angle between thigh and thorax can be traced back to American industrial designer Henry Dreyfuss. In 1959, he published *The Measure of Man* — a publication that became a seminal piece, referred to by furniture designers for years to come.

In it, he measured the human frame, including different statures and builds, and determined a set of 'average' measurements of the human form: the length of your lower leg, how far you can reach etc. However, his measurements relied on arbitrary angles between various parts of the body which in turn had a significant, if invisible, impact on how the body works.

For example, the 5° backward incline in the seat that he shows in many of his diagrams in fact traps the popliteal



artery that runs along the back of the knee. If a chair does have a full seat, as in Learniture's Acclivity seat, it's imperative there's a 'waterfall' edge to the front to ensure that artery is not trapped.

In the 1980's, there was a trend for 'Alexander Technique' kneeling chairs to solve these issues. Whilst this did bring the knees below the hips (good) it also transferred our body weight onto our knees too (bad) and did little to improve blood flow (also bad). Users frequently complained of housemaids' knee!

### The answer

There are a number of solutions in addition to VS's Panto Swing and Hokki. These include the Labofa Ray chair (available in the UK from Spaceoasis), HÅG's Capisco, Vitra's TipTon, Acclivity and Turn & Learn from

Learniture UK. In Australasia, you also have Furnware's Bodyfurn chair.

All incorporate sound ergonomic and anthropometric considerations in their designs. And all accept that the phrase "sit still and concentrate" should be banished to the annals of history because largely, it is a contradiction in terms.

Fidgeting children are frequently described both as being distracted and distracting, when in fact they're simply doing what their bodies do naturally — move.

Surely that's something we should embrace? ■

James Clarke is Divisional Director of Learniture [www.learniture.co.uk](http://www.learniture.co.uk) and is a contributor to *Planning Learning Spaces* book

# on reflection

## PROFESSOR STEPHEN HEPPELL PONDERERS THE WORLD OF LEARNING

Back in the 1980s we built an online space for children and teachers to work and share, all predating the Internet, of course. We used electronic mail and the teletext service Prestel instead. It worked rather well because children and teachers loved to have a place to simply swap ideas.

The kids wanted so much to be part of everything, that our teachers asked if there was a way to stop the students looking everywhere, since teachers' conversations were readily accessible.

Conversations sat behind an interesting 'door' labelled 'Staff Room' so we simply renamed the door as 'Curriculum Matters'. This sounded so dry that the children stopped looking in there. However 30 years on, that fascination to know more hasn't gone away.

Increasingly today, information about better learning spaces, and the better learning going on inside them, is widely available because of communications technology, big data and simple sensors connected to the Internet.

Being able to Skype others' classrooms and seeing comparative classroom data for themselves all open up our learners' eyes.

Children can't wait to make things better. They bring plants to optimise oxygen levels and perk up the brightness and whiteness of light with LED bulbs. They monitor and dampen their noise levels too, and find many other 'tweaks' to improve their spaces. This is where it gets really exciting. Having this rich information makes children want to act right away.

Take noise levels: noise is stressful for everyone, so architects and designers have laboured with costly acoustic panels, refracting wall angles, sound absorbent furnishings, and more. But as many schools are finding, an old tablet or phone on a pole running a free decibel meter, with a couple of children appointed as 'sound monitors' creates a dramatic degree of self-regulation.

Children CAN moderate their own noise, especially when it's their solution. In the wonderful Bondi Beach Primary School in New South Wales there is a financial penalty for excessive noise, suggested by the students. If the dining room becomes too noisy, the price of custard doubles.

Our little Learnometer.net research team is currently prototyping smart school furniture to help learners know if they are moving, or stretching, or standing often enough. Meanwhile, over in Madrid we are researching the best possible breakfast ahead of a high stakes test or exam. The new data and science coupled with the children's ingenuity and passion for better learning will eventually transform our learning environments.

I am excited about where this leads us next.

*Professor Stephen Heppell is CEO of Heppell.net and Professor holding the Felipe Segovia Chair of Learning Innovation at Universidad Camilo José Cela, Madrid.*

*He is an internationally recognised leader in the fields of learning, new media and technology.*



*The Space, Queen Anne's School  
designed by Lewandowski Architects  
© Photo: Jack Hobhouse*

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