

Space . . . As a Stimulus for Student Learning

By Margaret L. Sullivan

What does extreme boredom look like? Dog Whisperer, Cesar Millan, provided one answer. He fielded a question on how failure to challenge the brain can result in extreme behavior. The caller asked her question in frantic words. Her simple, yet visual question, initially made me laugh out loud. Cesar's answer made me stop laughing and go back to some recent research on embodied cognition.

"My dog is continually running in circles and licking the carpet", she said with exasperation. "What is wrong with her?"

"Her brain is not being challenged," Millan answered. "She is acting out her boredom."

The lack of stimulus was driving a physical behavior so strange the person was sure her dog was insane or extremely ill. She feared her dog needed medication; Millan thought the dog needed greater mental challenges, more interactive play, job responsibility, and increased sensory input to awaken her curiosity. Living brains need to be challenged in diverse ways to thrive; limit or restrict stimulus, and the brain's development suffers (Medina, 2008).

It is staggering to realise how powerful boredom, a lack of physical and mental stimulus, can be. Although sympathetic to the impact it has on the canine species, it is much more riveting to consider the prolonged effect on young humans in school. If every child were surrounded by a rich, stimulating environment and given progressively more challenging, interactive learning experiences, what would be the outcome? Probably profound; unfortunately, our schools are not yet this type of utopia. Yet . . . as we understand more about the impact of the environment on learning, why can't we move in a more exciting, stimulating direction?

Embodied cognition focuses on the body's actions, sensorimotor experiences, and how those influence development (Garbarini, 2004).

Dr. Daniel Wolpert, a neuroscientist at Cambridge University, makes and defends the dramatic statement that our brain has developed only to manage our complex moments.

'Movement is the only way you have of affecting the world around you . . . everything goes through contractions of muscles. So think about communication – speech, gestures, writing, sign language – they're all mediated through contractions of your muscles. So it's really important to remember that sensory, memory and cognitive processes are all important, but they're only important to either drive or suppress future movement' (Wolpert, TEDGlobal, 2011).

Use fresh eyesight and consider this research as you move through an educational environment, like your school library. Can the educational environment, how students interact with it, and what information they are receiving from it, influence how they learn? If so, then the question becomes: Are educational environments stimulating young minds or sedating them?

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Sadly, traditional school environments are not designed to challenge young minds. The environment does not embrace complexity, exploration or curiosity. They curtail sensory stimulation, especially by reducing exposure to the outdoors. Schools should be defined by all the spaces inside the building and surrounding it. These spaces should engage a student's sensory system as well as their motor system. As we move toward making every space in our schools a learning space we have a great deal of work to do to enrich the sensory environment as well as encourage a curriculum to foster movement.

'Embodied cognition has demonstrated how the workings of our mind are entangled with our physical sensations. It sheds new light on the powerful influence that our body has on our mind . . . It is providing surprising insights into how our movements influence our decisions and choices' (Sian, p. 22).

Educational space could be used to increase sensory input, it could ignite mental challenges and it could certainly foster interactive play. A student-centred learning environment would demand all of these qualities to engage the learner, trigger their curiosity, and instigate movement. Asking students to sit in rigid chairs in a pastel, cluttered room for extended periods of time directly goes against embodied cognition research. We were born to move, touch, experience, explore, take risks, and yet survive to learn more another day. These skills helped humans evolve and truly enlarged our brains (Medina, 2008).

Most schools were designed and furnished for a model required at the turn of 20th Century. It had a specific purpose: it was an industrial driver for students to learn to follow directions, respect an authority figure, be organised, handle repetitive tasks and memorise data for future application. This environment, frequently referred to as 'cells and bells', was designed to be highly structured, controlling, passive and competitive (Gatto, 2009). The physical space supported that model but it is not space conducive to the creative, independent thinkers we want going forward.

What Color is Your Library?

School libraries fall into low sensory zones whether they are planned or not. Spaces are zoned by adults for effective management of the library, not to ignite active, student-centered learning. Sight lines flow from the circulation desk out. Zones are defined, behaviour within those zones is implied, and students are expected at scheduled periods. Almost every school library supports a culture of both print and digital resources, each within its own zone. When we open the doors of a middle school library do we expect to be excited, engaged in the space? Do we even ask the question?

Let's tour a school library with the question of student engagement in mind. The doors into this school library were blue with access from an outdoor, exterior corridor. The day of the tour was a cloudy, rainy day and the library was tinted by the blue grey weather. The walls were painted a soft shade of grey, the shelving was grey laminate, the carpeting was blue flecked with grey, and the vaulted ceiling was probably white but the grey light coming through the high windows reflected grey. It was a clean, neatly organised space. As you walked in, the large C-shaped circulation desk was oak with blue trim and located immediately to the right. A large printer was on the desk, a number of piles of printed material were also there and a couple of computers. The desk was cluttered but not bad by contemporary workload standards.

The library housed a large instructional zone immediately in front of the desk with wooden tables and chairs facing a projection screen and an interactive whiteboard. The tables and chairs were natural oak, in good condition, but heavy and difficult to move on the carpeting. In the instructional zone there was a long counter of computers with a blue plastic chair at each station. Off this zone were a small production lab with green screen and a larger computer lab. Neither of these labs was visible from the doorway; there were windows into the labs but the blinds were shut.

At the opposite end of the library there were well-stocked, identical runs of 48" high double-faced shelving fanned at about a 30-degree angle. Each side of the zone was mirrored, the space was totally balanced. The walls in this zone, the largest zone, were lined with 72" high single-faced shelving. The aisles between the shelving were spacious; because the shelving ran on an angle, it took up a significant amount of space.

The library featured a few dark blue lounge chairs positioned at the end of shelving runs and a larger grouping of identical lounge chairs running down the spine of the room, separating the fanned shelving bays.

Most people would consider this a pleasant school library and not uncommon. There are numerous school libraries with this three-color regimen of blended tones, two colours and a complementary wood tone. Classrooms normally feature a two-colour scheme with no wood pieces so the library comes off as a richer, more sophisticated environment.

Look around your library for similar zones, organisation, symmetry and colour schemes.

Can You See Your Library with Young Eyes?

Now let's suppose you are a thirteen-year-old walking through those doors. Any thoughts about this library and the amount of stimulus it provides to this young person? Would 'boring' be a descriptor? Or perhaps the response would be 'it's just like my granny's living room'. Traditional school libraries are deliberately designed to be a passive, quiet space for passive, quiet work. Work is the operative word for these traditional library spaces, not learning or engagement.

Force yourself to look through the eyes of a student. Are there surfaces worth touching? Is there colour or texture? Does the space have dimension or does it look flat? Is there bold art? Are there contrasting coloured accents? Have the accents ever changed? Who selected them? Do they have meaning to the students? Is there natural light? Does it touch the students? Are there windows worth looking into or out of? Are there places to escape or collaborate? Is there implicit permission to move the furniture around the space to fit the student's needs?

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Photography courtesy of Chandler Oaks Elementary School, Round Rock, TX.

Is the space zoned for a mix of acoustical applications? Is there a quiet zone? Does it encompass too much of the space, too little? Do students know what learning 'sounds' like? Or do they assume that in the library it is mute?

Is technology integrated into the space as much as it is into their lives? Can they see what their peers are doing? Can they touch and manipulate technology tools liberally? Does the infrastructure support diverse applications and universal placement of technology? Can they access it and move as well? Can they stand and share their knowledge with like-minded peers? Can they create with it or just consume it? Have you moved technology beyond a tightly controlled row of monitors and keyboards into a ubiquitous tool usable anywhere on campus?

I don't believe that having technology in the environment alone can stave off boredom anymore. Nor does it get students moving or provide original and direct experiences. Technology is not the almighty panacea to human learning. It is an impressive tool in a long evolution of human inventions. It provides access to numerous resources, can be leveraged as a dynamic, creative tool, and it can quickly link students with the world outside their neighbourhood. Every student needs access to it, and should be proficient with it. Yet, the radiating blue light from its screen is not the Holy Grail to intellectual or physical development.

'Because there is such a close connection between physical and mental activity, moving the body can change how you think . . . Actions help infuse memories with an emotional charge that makes them last. Our previous experiences being in the world affect how we understand what we see, hear, and read about' (Sian, 2015, p. 77).

Is There Room for Improvement?

Identifying changes in your library that can affect how students learn, infuse their memories, and contribute to future learning experiences need not entail starting over or major renovation. It will require collaboration, asking key questions and a budget for key updates.

Let's go back to the blue doors and make hypothetical changes.

In a school with open, outdoor corridors there should be an outdoor learning zone before you enter the library. Outdoor learning spaces should be planned; a WiFi garden that students want to use is a wonderful sensory experience. A garden is landscaped to engage the senses. The garden should be available for use by students just as the interior space is. Windows from the library into the garden are recommended to draw the two spaces together and provide casual supervision.

The placement of a circulation desk has always been a complex issue. It normally takes the foremost merchandising location coming through the doors. There are so many excuses why it has to be there, like security issues, operational issues, aesthetic issues, service issues, that I have stopped asking for a change.

Instead, as a starting point, select an area of the desk and convert it to a student information-interface counter. Remove everything from the area, brand it with signage and keep it clear of 'stuff' except perhaps small sensory items like a plant, a unique piece of artwork or tactile objects for students to handle while talking. Use it as a coaching station. Assure students it belongs to them as well as you. Coaching from their side of the desk makes it easier for you to move out from the station to incorporate resources into your discussion. Using a tablet makes you completely mobile as you set the pace for movement throughout the library.

If the library is monotone, add contrast. It will make the room much less flat, and add focal points. Grey and blue are cool colours and need warm colours like red or yellow to spark them up. Accent walls or bold graphics on a wall add interest and give the room depth. If you have access to a talented designer or seamstress, create banners to add both colour and movement. Budgetary dollars for new furniture should first go to adding colourful, comfortable seating. Rigid wood or hard plastic seating are students' biggest complaint. The array of fabric patterns, colours, and the ability to mix material is now outstanding, and will make a dramatic difference in the sensory appeal of the space.



Photography courtesy of Bretford.

Running shelving on angles requires a significant amount of space. As print collections are reduced or used less frequently, evaluate the space devoted to storing print. If possible, put parts of the collection on mobile shelving. It can be moved out of the way or be brought into an instruction area. Reducing the shelving zone to a smaller footprint provides room to repurpose space for active learning.

Long runs of shelving are static; try integrating varying heights or seating to break up runs, and to create alternative patterns. Take some of the reduced shelving space for casual reading zones with small groupings of vibrant colored, soft seating. These types of spaces are more inviting than a long row of lounge chairs or an isolated single chair positioned at

random. Grouping chairs together in small, collaborative clusters delivers a clear message to students – the space is focused on the users.

Heavy, difficult to move wooden tables and chairs do not work in a flexible learning space. These tables are better positioned in zones for quiet study or small team collaboration. Lightweight tables that can be quickly reconfigured are appropriate for a mix of instruction and collaborative learning. Consider both stand-up and sit-down height tables to encourage students to move while working. The goal in an interactive learning space is to provide furnishings students can easily manipulate while they move with their portable technology devices.

Production labs with students actively engaged in learning must be visible. Peers, administrators, and faculty should be able to observe what is taking place in these zones. Open the blinds or better yet take down a wall. A new, large opening can be secured with a glass garage style door that can be closed and locked when necessary. Meanwhile, a large threshold into a production area is inviting, calls attention to student engagement and gives learning a wealth of sounds. Creativity coming from these spaces will be contagious.

... how can the active and quiet zones coexist naturally?

Zoning your school library for new student-centered learning is step one in creating an active, technology rich environment. A new question to ask as you plan is, how can the active and quiet zones coexist naturally? If not, how can you separate them so both are

functional throughout the school day? Which zones need to change during the day to complement hands on student learning? What tools are interactive? And is there adequate space around the tools for students to engage?

Next decide how the zones will provide sensory stimulus to challenge students' minds. Sights, sounds, touch and smells are all possible; even taste can be infused into the library. Your library can surprise students by providing them with a sensory environment that is complex, experiential, and sparks curiosity. Get students out of their chairs and exploring all the resources available in this rich environment, then let them rest a moment to take it all in. Boring should never be an adjective to describe a school library.

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