

Designing Classrooms of the Future Now!

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In this article we showcase the work of three teachers in redesigning classroom learning environments to enhance student learning. Through short interview excerpts, a video, and classroom photos we feature ten design ideas they used to redesign their classrooms. In the article we also argue that despite lofty rhetoric espousing pedagogical innovation and 21st century learning, classroom design provides the most visible sign of what schools and educational leaders actually believe and value. We call for greater attention to the ways classroom spaces constrain and enable teaching and learning that can better support important 21st century educational outcomes.

Introduction

Every year, thousands of educational studies seek to find the best methods and conditions under which students learn. As educators we are constantly looking for ways to adapt new approaches to teaching and learning and improve our teaching methods and curriculum. Many educational leaders call for classroom practice that is more student-centered, innovative, collaborative, inquiry-based or project-based, and for teachers who are empowered to help students develop 21st century competencies (e.g., see MOE, 2014).

However, school culture can often constrain or inhibit new and innovative classroom practice. Cornbleth (2001) has

described different school cultures that often interfere with educational innovation or make teachers reluctant to use innovative instructional strategies. She has described these school cultures as often highly bureaucratic (emphasizing order and control), conservative (to maintain the status quo), and excessively competitive with a great deal of attention given to student testing, accountability, and school rankings. This puts teachers in a sort of double bind in which they receive conflicting messages about the need for innovation while school culture and classroom environments remain quite conservative or place an emphasis on order, accountability, and stasis (Baildon & Sim, 2009).

Where we might find evidence of this emphasis on order and control is in the very structure and design of classroom learning environments. Classrooms in Singapore and many other places in the world today look much like those in the 1950's, with desks in rows and a teacher desk at the front of the classroom. Of course, various forms of technology have been added to many classroom settings, but schools have made rather few adjustments to the sound, the lighting, the furniture or the physical layout of modern day classrooms to accommodate pedagogical and technological changes. It is hard to imagine innovative classroom practice that truly prepares young people for the kinds of living, working, and learning necessary for the 21st century taking place in these environments.

Instead, we believe it is time for “creative imagining” (McWilliam, 2010) in which school leaders and teachers utilize policy rhetoric to make a case for rethinking classroom structure and design to better support 21st education goals, innovative classroom practice, and the kinds of learning culture called for by reform efforts. Like designing lesson plans, designing learning environments depends on our aims and purposes. If we want order, control, and more of the same in education, classrooms will continue to look like they have over the past 50 years. If we truly want to prepare students for the 21st century “in which comfort with ideas and abstractions is the passport to a good job, in which creativity and innovation are the keys to the good life, in which high levels of education – a very different kind of education than most of us have had – are going to be the only security there is” (NCEE, 2007, pp. 6-7), then we would expect school cultures and classrooms to be quite different. This requires creating greater opportunities for experimentation and design, not only in lesson planning and instruction, but in the very design of the learning environments provided for students.

In this article, we consider what types of classroom setting might better support the changes in education called for by educational leaders by highlighting the work of three teachers to re-design their physical classroom environments in hopes of creating a different culture of learning. After outlining some of the literature calling for the redesign of classrooms, we share their views and their efforts to change their classrooms as well as photos and a video to showcase their efforts. It is our hope that this will spark “creative imagining,” experimentation, and a few ideas for re-design that educators can use to transform their teaching and learning spaces.

We shape our buildings and thereafter, they shape us. Winston Churchill

Is it the 21st Century Yet? The Need to Redesign Classrooms

The term 21st century learning has become a cliché, with many books, videos, articles and conferences addressing the need for fundamental changes in the way we prepare students for new social, economic, political, and environmental conditions. The basic argument is often that we are in the midst of globalizing processes and an information explosion where our knowledge base is increasing at an exponential rate and old methods of knowledge acquisition and retention are no longer sufficient. These ideas are well expressed by groups such as the [Partnership for 21st Century Skills](#), the [Metiri Group](#), the [Organization for Economic Co-operation and Development \(OECD\)](#), the [International Society for Technology in Education \(ISTE\)](#), and the [Association of American Colleges and Universities \(AACU\)](#). These organizations tend to call for new literacies, a range of critical and creative thinking skills, and particular habits of mind or dispositions that will empower young people for new forms of work and the types of citizenship necessary to understand and address a range of increasingly complex and interconnected issues. As Erica McWilliam (2010) notes, the call is for a particular “epistemological agility” which requires the ability to cross domains, explore alternatives, and manage knowledge that is often uncertain, fluid, and constantly changing. This agility also requires risk-taking dispositions, rather than dispositions for routine thinking, and capacities “to select, reshuffle, combine, or synthesize already existing facts, ideas, faculties and skills in original ways” (p. 291). Why, then, do we see few

classrooms that seemingly support these abilities, capacities, and dispositions?

If we are sincere in our efforts to move away from the 19th or 20th century factory models of schooling, we have to reconsider the purposes of schooling in the 21st century and think more deeply about the cultures of learning that we hope to foster. And we need to consider how classroom environments can better support a new culture of teaching and learning that might more directly support important 21st century educational outcomes. In their book, *The Language of School Design: Design Patterns for 21st Century Schools*, architects Prakash Nair and Randall Fielding (2005) call for a common design vocabulary and design patterns that can help educators think more about spatial quality, key psychological and physiological processes central to learning, and community connections in a more holistic manner. They highlight that classrooms are the most visible signs of educational philosophy. If this is the case, there is a clear disconnect between the philosophies that most schools claim to believe in to prepare students for the 21st century and the kinds of classroom environments they provide. This requires us to think how school and classroom environments might be restructured to better support the philosophies, aims, and goals we claim to hold dear.

As students, teachers and human beings, we are shaped and influenced by each other and by our environment. Our environment includes both the physical settings that we work, study and live in as well as the technology and media that permeates these settings. However, we can no longer view classroom environment, pedagogy, curriculum, and technology as separate entities. Rather, they should be viewed as embedded in each other and as potentially enabling or constraining the

other elements that make up educational spaces (Segall & Landauer-Menchik, 2007). Instead, the pedagogical relations between environment, curriculum, technology and teacher-student interactions can be seen as a third space (McWilliam, 2010) that makes consideration of learning environment key since it tends to structure, constrain, inhibit or open up new possibilities for teaching and learning.

For example, consider the ways your own classroom environment might enable or constrain particular kinds of classroom practice. Nair and Fielding (2005) outline 18 Learning Modalities that can help us think about the relationship between physical learning environments and different kinds of learning opportunities:

1. Independent study
2. Peer tutoring
3. Team collaborative work in small and mid-size groups (2–6 students)
4. One-on-one learning with the teacher
5. Lecture format with the teacher or outside expert at center stage
6. Project-based learning
7. Technology-based learning with mobile computers
8. Distance learning
9. Research via the Internet with wireless networking
10. Student presentations
11. Performance and music-based learning
12. Seminar-style instruction
13. Community service learning
14. Naturalist learning
15. Social/emotional learning
16. Art-based learning
17. Storytelling (floor seating)
18. Learning by building—hands on learning

To what extent or in what ways does your classroom support, enable or make difficult (constrain) possibilities for these

forms of learning? This question encourages us to think about how classrooms might be more flexibly designed to support these different learning modalities. If we want to promote the kind of epistemological agility called for by 21st century educational outcomes, can we envision more flexibly designed classrooms to support such teaching and learning?

Three Teachers Who Became Designers

Indeed, the three teachers interviewed for this article were influenced by some of the ideas noted above and began with the idea that the environment can serve as a “third teacher” in classrooms. Specifically, they each had read and were influenced by [*The Third Teacher: 79 Ways You Can Use Design to Transform Teaching and Learning*](#) and have used several key concepts taken from this book to guide their thinking and design efforts.

The three teachers we interviewed teach at the Singapore American School and are trying out new classroom designs with their students. Rindi Baildon and Alice Early team teach all subjects with 4th Grade students and Kate Bucknall teaches 7th Grade students in Reading and Language Arts. Full disclosure: Rindi and Kate are our spouses.

All three teachers have taught for over twenty years in American, British and international schools around the world. Their students are diverse, coming from all five continents. We organized their ideas and photos from their classrooms around ten key design ideas that are suggested by *The Third Teacher* and that we see in their classrooms. Our intention is to showcase their thinking as well as their classrooms through brief interview excerpts and images.

Design Idea #1: Everyone can be a Designer

Kate Bucknall, a Middle School teacher the Singapore American School, recently moved from 5th Grade to 7th Grade and in the process she remodeled her new classroom to better accommodate her students’ needs and learning styles. Kate documented the changes in [this video](#) which provides a before and after view of the changes.

Interviewer: Would you talk about the changes in your classroom shown in this before and after video?

Kate: I do a lot of collaboration in my class. When I walked into my new classroom in 7th grade, it looked very traditional and rigid. The desks were an old fashioned design with the chairs attached, which makes it very difficult for students to move around and talk with one another. I also noticed that the room had mold and the air quality was not good. Fortunately, I had furniture from my home that I had used in my previous classroom to bring in. Along with this I asked the school if they could provide me with some tables to replace the desks. The change has been dramatic and positive. Students can work with each other in partners, small groups, or independently without being distracted by others. For example, writing partners choose a place to sit where they can focus; some students like to work on the floor; some can work at desks or on the higher tables. When students meet for their book club, I assign them a place to sit which is far enough from other groups; this way they can have discussions that won’t distract others. Some students like, or need, to work independently; they can sit in a quiet area at the back with no distractions. The different

heights of the work areas also help support collaborative work and discussions. When desks are all at the same levels, the sound level is raised, whereas with different heights the students are less distracted by the noise.

Figure 1: Conferencing with students



Design Idea #2: Domesticate Classrooms

Interviewer: Your classroom looks more like a person's home than a typical school setting, is this intentional?

Kate: Yes, there is an ample amount of brain research to show that students learn better in a relaxed-type setting rather than a sterile institutional environment. I want my students to be comfortable, to feel at home, so they can have a learning space that feels safe and familiar when they are sharing their thoughts and feelings. If students feel safe in their environment, they are more likely to take risks. I have noticed shy students raise their hands and contribute to discussions more, students might not be sure whether their answer is correct or not, but in a relaxed setting they will give their answer anyway as they feel less stressed.

Figure 2: Students reading comfortably in furniture brought from home



Design Idea #3: Emulate Museum Spaces

Interviewer: You have some interesting objects and artifacts in the room, are these just for aesthetic purposes or are they part of the way you teach Reading and Language Arts?

Kate: Physical items can be very effective learning tools for teaching. I talk a fair amount about brain research, so even though I am a literature teacher, I use this plastic model of the brain to illustrate to students how their brains are processing at this age. I also hope that the items in my classroom will allow the sense of touch and feel to be a part of their writing and reading experience. Sometimes I have them bring in items to class to help in this process.

Figure 3: Students in artifacts area



Design Idea #4: Expand Virtually

Interviewer: It looks like all of your students have laptop computers. Do you take technology into account in your classroom design?

Kate: Students cannot be prepared for the present let alone the future without up to date technology skills. My students communicate their work to me, their peers and their parents through blogs, videos, voice casts and other formats on a regular basis. When I present information to them via the LCD projector, I know they have to have a good line of sight and a clear image. When we are working in the class I like to have nice natural light coming in, but when we are looking at computer screens I know that I have to darken the room slightly for good visibility. There are lots of factors to consider when using technology.

In the Elementary Division at the Singapore American School, Alice Early and Rindi Baildon team teach two 4th Grade classes with adjoining rooms. They too recently moved classrooms and have made changes in their classroom designs.

Figure 4: Students with laptops or iPads



Design Idea #5: Collaborate and Innovate

Interviewer: I understand you both submitted a proposal to team teach your 4th grade classes. How did this change the look of your classrooms?

Alice: Making the classroom visually pleasing helps learners and teachers feel comfortable. This brings about feelings of safety and we all know we learn at our best when we have no other “issues” to worry about. This means we have various forms of lighting, including many lamps that are beautiful pottery, pieces of art in themselves, fun and meaningful artifacts, and various carpets. We worked to provide spaces where all 44 students could gather comfortably in each room and where all 44 students are provided a table space when needed. We’ve scoured our local Salvation Army for deals and found children’s office chairs, round tables, higher tables to stand at when working and we kept some student desks in the rooms too. We would have liked to take down or modify the wall between our two rooms, but it works out very well to always have our adjoining door open.

Rindi: To add on to Alice’s comments, we have also tried our best to expand our learning spaces to include the hallway outside of our adjoining classrooms with various tables and desk and chair arrangements, where students can meet in partnerships, small groups or even work alone. We intend to use our students’ ideas to help further transform these areas, and others, into kid-friendly work areas beyond the walls of our classrooms.

Figure 5: Collaboratively designed classroom



Design Idea #6: Build Nests

Interviewer: This student looks very comfortable. Do you think this helps her to focus better on her reading?

Alice: Absolutely, comfort helps her focus; some students prefer to be more upright, others lie on their bellies! I even have a couple of students who choose to go into our hallway to read because the air-conditioning feels too cold to them.

Figure 6: Students reading on pillows



Design Idea #7: Swivel to Attention

Interviewer: I notice you also have mobile chairs. Do you find you have behavior problems when you give students at this age chairs on wheels?

Rindi: Kids love the “wheelie chairs” which has to do with novelty as well as

being able to move while learning, which for some really enhances their ability to focus while engaged in an activity. We work with the kids in determining what kind of space they feel they can work best in. Do they prefer to have the ability to twist or move? Do they need to sit more stationary on the floor? Do they work best at the traditional desk and chair? Or standing? Does the task at hand have you choosing different kinds of seating? At this time in the year we don't seem to have enough wheelie chairs, but it will be interesting to see if this shifts throughout the year as students become more aware of “place and space” – of their learning styles and preferred space for optimal learning.

Figure 7: Students on chairs with wheels



Design Idea #8: Shuffle the Deck

Interviewer: Since we have been talking I have noticed that Rindi has moved her students into your room. Is this part of your overall design and why?

Alice: We are moving the students a lot. When I'm the “main teacher” I'm usually set up in this room so it's easier

for everyone to gather here. We feel like these 44 students are OURS and it's our hope that they feel comfortable and energized in this whole space (both classrooms). It's been wonderful to give these students the chance to learn from both of us. When Rindi teaches I can work with students individually or in small groups. I can assist where needed. Or, I can observe students to make sure they are attentive or on task. Then when it's my turn to take the lead, I have so much more energy!

Figure 8: Designed for multiple learning spaces



Design Idea #9: Make Classrooms Agile

Interviewer: This is my second time back to your classrooms and it seems like things have changed a bit, have you moved your tables to new locations?

Rindi: Yes! By getting to know our students and seeing what spaces they are choosing as their optimal learning space we have started shifting tables and chairs around the rooms. I teach math in “my” classroom where I use the overhead projector and interactive white board consistently and am

continually shifting furniture to allow students to be able to see the whiteboard, work in small groups or with partners, and to be seen and heard when presenting ideas to the large group. A lot of the furniture can be easily moved to provide different groupings for the activity on hand. Even a stack of pillows or carpet squares can be used to define a book club on the spot. I suspect the furniture will be continually changing and moving in our rooms, as our students develop and grow as learners (and teachers too!).

Figure 9: Classroom spaces for different purposes



Design Idea #10: Display Learning

Interviewer: I have noticed that you, Alice and Kate all have a lot of student work up on the walls. Do you see that as important in your room design?

Rindi So important! Who doesn't want to see their work on display?! There is a focus at our school to display teaching charts for students to access key learning targets and lesson discussion points in each unit as well as to display student work. It is important not only to have a balance of both types of work on display, but to keep questioning, "When is there enough?" as it is easy to visually overload some students in your classroom. Using iPads to take photos of teaching charts and personal work is a great way to preserve all of this great work and student learning and to keep the classroom visually comfortable for all.

valuable. The students brought in photos and then were taught about color, mounting, and captioning and then they assembled the whole thing at school. We've learned so much about each other from this! And a huge PLUS from this project is we have more "art" in the classroom. These posters are a work of art! We've recently gifted our hallway bulletin boards to students who want to share information with the school. We're excited to see where they take this responsibility!

Get Ready, Get Set, Design

In this article we have called for greater attention to the structure and design of classroom learning environments. We recognize the limitations that schools and teachers operate under but call for schools and school leaders to give teachers and students greater opportunities for innovation, experimentation, and design. One place they can start is in the design of

Figure 10: Bulletin boards to display student work



Alice Each of us has made a "personality poster" to show students a little about ourselves outside of SAS. These posters are unbelievably

classroom learning spaces. Schools and school systems that place a premium on order, stasis, testing and sorting students, and accountability will continue to have

schools and classrooms that look similar to those of yesteryear and are likely to reproduce more traditional forms of classroom practice. There is some question as to whether such learning environments can fully prepare students for the kind of epistemological agility necessary in the 21st century.

The physical environments that we learn in have a significant impact on our thinking, our perceptions, and the work that we do. This is well illustrated in the TED Talk by Steven Johnson called [*Where Good Ideas Come From*](#). In this talk, Johnson highlights the role of 17th century English coffeehouses in the exchange of diverse ideas and the flowering of innovation that led to the Enlightenment. He attributes this innovation to the fluid environment coffeehouses provided that enabled people from different backgrounds to come together to study, talk, share ideas, collaborate around common problems, and to deliberate on the pressing issues of the day.

These same principles may help us think about creating learning environments that serve as incubators of ideas, creativity, the deep exploration of issues and problems, and innovative solutions. In a similar fashion, it requires school leaders and teachers having opportunities to talk about design ideas, such as those offered in this article, creatively imagine alternative classroom structures, and collaborate around the creation of new environments and approaches to teaching and learning. In other words, schools can be modeled on these principles to better support the work of teachers.

There are many excellent books and websites available on design based thinking. *The Third Teacher* is an excellent book to get you started. Professor Stephen Heppell has [archived a range of physical](#)

[\(and virtual\) learning spaces](#) for people interested in classroom design. It also helps to visit cool, innovative spaces in schools, libraries, museums, book stores, coffee shops, shopping centers, hotels and other locations that can provide you with inspiring ideas. It requires that school leaders provide opportunities for teachers and their students to have a say about their classroom spaces. The teachers in this article took the initiative to rethink classroom space, took some risks in creating new learning spaces within their classrooms, and continue to learn from their endeavors. They are also encouraging their students to participate more in the design of their learning spaces. These are beginning steps which can empower teachers and students in designing their futures.

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