CHAPTER 1

The Problem with Traditional Classrooms

Place matters in education—it always has, and it always will.

Of all the places I remember from my childhood, school was one of the most depressing. My school was a rectangular box filled with identical rooms, each of which had the same uncomfortable furniture bolted to the floor. The walls were drab and the front of the room was dominated by a large blackboard before which my teachers presided. The windows in the room typically looked out onto the street where, at least, one might glimpse cars passing by. However, looking out the window was frowned on because it showed disrespect for the teacher—and anything that violated the "eyes-front" rule resulted in a trip to the principal's office—where, at least, the waiting room chairs were more comfortable.

In later years, at other schools, I was treated to chairs with built-in "desks" on the right side of the seat. Because I was left-handed, this configuration was painful to endure because I had no place to rest my arm as I was writing. One teacher even went so far as to ask that I learn to write with my right hand—to modify myself to match the furniture. As a result, I am now ambidextrously dysgraphic.

Yes, this depiction sounds severe, and perhaps I have chosen only to emphasize the bad parts—but the fact that bad parts even existed

makes my point even more strongly. Childhood should be a time of joyous exploration—of play and discovery. Yes, there exists a real need for the didactic presentation of information; and the acquisition of skills, no matter how important they might be, can sometimes look very repetitive and mind-numbing.

It wasn't until decades later—long after my schooling was a distant memory—that I started wondering why my elementary and middle schools looked the way they did.

When I started speaking at educational conferences, I glibly argued that the reason for poor design was that schools, prisons, and mental hospitals were the only three places in society where, if you didn't go, someone came and got you. If attendance wasn't voluntary, why make it inviting?

But I was wrong, very wrong. The challenge of school design has been with us for ages—in fact ever since formal schools were created. This is reflected in the amazing painting of a classroom at the University of Bologna by Laurentius de Voltolina created around 1350 (see figure 1.1).

This all-too-recognizable picture of a classroom shows a teacher at the front, lecturing to a room full of students, only a few of whom are paying attention. Some are sleeping, others are talking, and some are probably just letting their minds wander. How effective could this model of education be? In all likelihood, it was not very effective then, nor has it been in the centuries that have passed since this picture was painted. Yes, perhaps some students did well in this environment, but many others did not.

And (as we'll explore soon), the problem is not necessarily the teacher but the environment in which the teacher is forced to work. Physical environments that impede learning hurt teachers as well as students. Some have said it isn't *dyslexia* but *dysteachia*, but, in fact, it may be *dysfacilitia*. The time is long overdue to shift the blame for a failed system from the teachers to the facilities themselves.

The idea that facilities shape educational practice is not new. In 1928, Harold Rugg and Ann Shumaker wrote *The Child-Centered*

Figure 1.1
Source: Classroom picture painted by Laurentius de Voltolina, c. 1350, from http://en.wikipedia.org/wiki/File:Laurentius_de_Voltolina_001.jpg.

School: An Appraisal of the New Education, a book about the rise of progressive education started by John Dewey and his contemporaries in response to the then-popular factory model of schooling found throughout the country. As the authors wrote,

> Not long ago news reels were flashing on the screen scenes of the desolation left in the wake of a cyclone which had swept the Middle West. The camera played over homes and villages which had been splintered into matchwood, and suddenly, amid the debris, the remains of a schoolhouse appeared. Walls and roof had been ripped off, but there still tightly screwed to the uptilted floor, stood rows of rigid schoolroom desks and chairs Untouched,

> Immovable, more Inexorable than Fate itself they stood—mute symbols of an unyielding discipline!
>
> Desks in rows! A characteristic setting for the traditional education, and typical of its spirit, too. Desks in rows to prison unwilling and recalcitrant youth while education laid its heavy yoke upon them. Children required to sit still—freedom of movement denied them. Repressed and quiet, they were crowded into huge classes where personal identities were thwarted if not entirely submerged.
>
> Here order and quiet were the prerequisites of the educative process. Having chained the pupil to his desk and by a rigorous discipline subdued all overt physical activity, the old school proceeded to teach him.
>
> For it was with the minds of pupils that the older education was chiefly concerned. Pupils sat at their desks all day, studying and reciting. The curriculum was crowded with subjects through which the pupils passed to the accompaniment of a continual dread of examinations marks, reports. What need had this educational regime for other than the stock materials—books of texts, blackboards, papers, pencils, a map or two?[1]

Rugg wrote from the perspective that schools were about to change for the better—to leave outmoded models behind. His goal, like that of most progressive educators, was to make learning an adventure, not a dreaded chore. History has (unfortunately) proved him wrong. Schools did not abandon the failed practices of the past. If anything, they have been reinforced and even perpetuated through the inclusion of new technologies that do nothing to address the core issue. Take, for example, the rapid growth of interactive whiteboard installations in schools. These expensive devices perpetuate the model of education that has the teacher at the front of the room with the students (primarily) listening to a presentation—the very model known to have been a failure since 1350!

More recently, this topic was revisited in a series of articles in *New Directions for Teaching and Learning* describing how furniture selection and layout affected college education.[2] Several articles in that journal show the connection between classroom layout and constructivist education, a connection that will be explored later in this book. Another book on the topic by Richard Gerver addresses the challenge and bemoans the fact that most modern schools have all but destroyed the creative impulses of children.[3] He asks a bold question: "Why can't schools be as exciting as Disney World?"

But one does not need scholarly journals and books to find the problem—one need only ask the teachers themselves. In some of our workshops, teachers are asked to design their ideal classroom. Rarely, if ever, do these designs bear any resemblance to the traditional classrooms of our youth. For example, a reading resource teacher submitted the following concept: she wanted a special room for reading with a tumbling mat in the center with nice cushions for those children who like to read lying down. To the left were hanging egg chairs for those kids who like to be cocooned while reading. The rest of the room had tables, computers, bookcases, and a fireplace (this teacher works in an area that gets quite cold in the winter). She also wanted a loft for herself where she could work one-on-one with a child without drawing undue attention from the rest of the class. In her dream classroom, she neither had, nor wanted, a desk of her own on the main floor.

GETTING TO A STATE OF FLOW

So far, we've presented the case that traditional classrooms are failing to meet the learning needs of many students and that the redesign of facilities can play an important role in rectifying this situation. But what deeper basis drives the suggestion that place matters so much?

An answer can be found through the application of the theory of flow developed decades ago by Mihalyi Csikszentmihalyi.[4] In an excellent series of books, he describes the characteristics of intrinsic

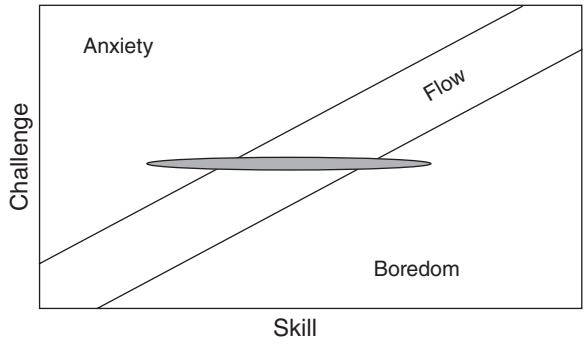

Figure 1.2

motivation and the importance of a state of being he calls *flow*. Basically, he makes the observation that we face challenges with a set of skills. Our reaction to the challenge depends on our skill level as shown in figure 1.2.

In this figure we can see what happens in different situations involving challenge and skill. If the challenge greatly exceeds the student's skill, anxiety sets in. When the skill of the learner is much higher than the challenge, the student is bored. But when skill and challenge are matched, we enter a region called *flow*—a space that is home to optimal experiences.

We've all experienced flow—perhaps when engrossed in a great book, an engaging athletic activity, or challenging (and rewarding) work. Students can (and should) experience flow in the classroom as well as outside of school. When school induces flow states, students want to stay after the end of the day—they show up early and are eager to take part in their activities. But consider what happens when we emphasize lectures in the classroom. In this case, the challenge is fixed by the teacher (represented by the gray, elongated oval in the figure). Faced with this static challenge, some students may bring low levels of skill and become anxious. Still others may have much higher levels of skill and become bored. Those for whom challenge and skill are matched have the potential to experience flow, and for these students traditional schooling may work pretty well.

But, the traditional school doesn't work for everyone, or even most students, suggesting that a heavily lecture-based pedagogy is flawed if our goal is to reach every learner. Look at the painting by de Voltolina again to see the consequences of this approach. Of course, there is more recent evidence of the problem. Csikszentmihalyi and his colleagues have conducted studies in which students respond to beepers during various activities and report on their levels of engagement while listening to adults talk.[5] For example, in an honors history class in which the teacher was lecturing about Genghis Khan's invasion of China, students used beepers that, when triggered, told them it was time to report on their levels of engagement. Of twenty-seven students in the class, only two were thinking about China; and of those two, one was thinking about Chinese food and the other was wondering if Chinese men wear their hair in ponytails. Although there is no one single pedagogical approach suited for all students, there is one approach that goes a long way toward addressing the challenge of getting all students to enjoy a state of flow: inquiry-driven, project-based learning.

The development of inquiry-driven, project-based learning, like many of the other innovations described in this chapter, is not new. Similar to many innovations, it was the development of thinkers in the field of progressive education. William Kilpatrick at Columbia University wrote an article on the "project method" many years ago. In this article he made the following point regarding projects as "purposeful acts":

> How then does the purposeful act utilize the laws of learning? A boy is intent upon making a kite that will fly. So far he has not succeeded. The purpose is clear. This purpose is but the "set" consciously and volitionally bent on its end. As set the purpose is the inner urge that carries the boy on in the face of hindrance and difficulty. It brings "readiness" to pertinent inner resources of knowledge and thought. Eye and hand are made alert. The purpose acting as aim guides the boy's thinking, directs his examination of

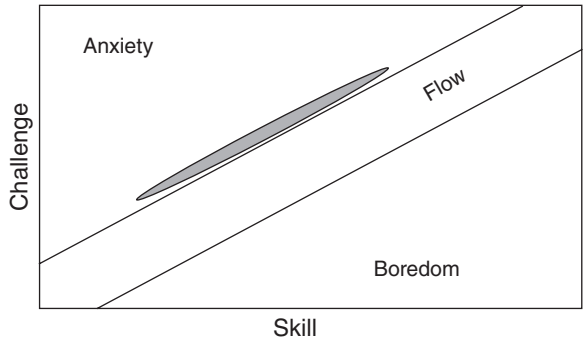

Figure 1.3

> plan and material, elicits from within appropriate suggestions, and tests these several suggestions by their pertinency to the end in view. The purpose in that it contemplates a specific end defines success: the kite must fly or he has failed. The progressive attaining of success with reference to subordinate aims brings satisfaction at the successive stages of completion . . . The purpose thus supplies the motive power, makes available inner resources, guides the process to its pre-conceived end and by this satisfactory success fixes in the boy's mind the successful steps as part and parcel of one whole. The purposeful act does utilize the laws of learning.[6]

If students are engaged in acts they consider to be purposeful, what happens to our challenge and skill diagram? The oval representing the distribution of the challenge to students in the classroom shifts as shown in figure 1.3.

This figure suggests that, when students are allowed to work at projects based on their own skill levels, they create challenges that move them into the optimal area where challenge and skill are balanced. But given that a goal of education is skill development, how does this realignment help?

Basically, as students work on their projects, they increase their skills to the point that they enter the flow state. How does this happen? If they maintain the same challenge, they begin to become bored, so

they increase their own challenge. The result is a staircase of skill development taking place near the flow boundary, with each student moving at his or her own pace. And, if students are in flow, then most likely the teachers are as well.

With all the power of project-based learning, it is logical to ask why this pedagogical model has not become commonplace. One argument is that the US focus in education has been driven during the first decade of this century by high-stakes testing that caused educators to focus on helping students score well on those tests. This test-driven approach to education was seen to be dependent on lectures and readings. The idea of students doing projects on their own, in which the curricular outcomes of these projects could not be determined in advance, was seen as cutting into the school day rather than enhancing it. In many cases, the effect of these laws stripped creativity and innovative problem solving from the curriculum. But, with the rise of new standards (for example, the Next Generation Science Standards (www.nextgenscience.org/next-generation-science-standards), this situation will change in fundamental ways. First, rather than focusing purely on content, the new standards address thinking strategies and the transferability of ideas across disciplines. These standards open the door for the widespread adoption of inquiry-driven, project-based learning.

The adoption of new standards is not enough. Fundamental changes in teaching strategies take a long time to adopt. Our own experience in this area suggests that up to three years of ongoing staff development are needed to be sure the changes have really taken hold. Some strategies for helping the migration to project-based learning will be explored later in our technology section.

Engagement is the key objective. With the goal of creating environments that engage challenged learners and provide opportunities for flow, we now start our exploration of the four primordial learning spaces mentioned in the introduction to this book—the Campfire, Watering Hole, Cave, and Life. Each of these has a role to play in the crafting of educational activities that engage students at any age and in any subject.