The Challenges of Sustaining a Constructivist Classroom Culture

Ms. Hughes' sixth-grade classroom is a noisy place, and if you come to visit you may have a hard time finding her. Today, students are clustered in small groups, bent over note cards and diagrams they have assembled in order to determine whether they can design a habitat that can support Australian dingoes and marmosets.

The students have just participated in three days of discussion and reading about interrelationships among mammals. They are divided into four groups, each of which has negotiated with Ms. Hughes to devise a complex problem to work on that reflects their interests and abilities. One group chose a design problem: creating a habitat for a local zoo that will support at least three kinds of mammals naturally found in the same geographic area.

The students are now engaged for the next two weeks on this project. They find and share dozens of resources, many of which are spread out on tables and on the floor around the room. Allen brings to class a video he shot at the zoo last week so that everyone can see what different habitats look like. Michelle loads a CD-ROM on mammals that she brought from home, and James donates one of his mother's landscape architecture books for ideas on how to diagram spaces and buildings.

During the next two weeks, these students will develop an understanding of how mammal species interact with one another, cope with the environment, and follow the natural cycles of reproduction. Concepts such as "competition for resources" and "reproductive capacity"—whose definitions in other classes might have been memorized—arise instead from a meaningful and multifaceted context. These concepts are built on the experiences of the students and are essential, interconnected considerations in the success of the habitat design. This is one of the many faces of the constructivist classroom.

A growing number of teachers are embracing the fundamental ideas of constructivist learning—that their students' background knowledge profoundly affects how they interpret subject matter and that students learn best when they apply their knowledge to solve authentic problems, engage in "sense-making" dialogue with peers, and strive for deep understanding of core ideas rather than recall of a laundry list of facts. Unfortunately, much of the public conversation about constructivism has been stalled on its philosophical contrasts with more traditional approaches to instruction. Constructivists have offered varying descriptions of how classrooms can be transformed, usually framed in terms of these contrasts. And although these descriptions have prompted educators to reexamine the roles of teachers, the ways in which students learn best, and even what it means to learn, the image of what is possible in constructivist classrooms remains too idealized.

To all the talk about theory, educators must add layers of dialogue about real classroom experiences and concerns about those experiences. An essential part of this dialogue is the articulation of the pedagogical, logistical, and political challenges that face educators who are willing to integrate constructivism into their classroom practice. The new discourse shifts the emphasis from comparisons between constructivism and traditional instruction to the refinement of constructivist practices in real classrooms. This frank conversation about challenges is equally valuable for sympathetic administrators—being informed and reflective about these issues is a necessary prerequisite to offering support for the classroom teacher.

In this article, I characterize and describe these challenges precisely because they cause us to reconsider and dare us to change the comfortable (and often unstated) norms, beliefs, and practices of the classroom culture we are so familiar with. Constructivism is more than a set of teaching techniques; it is a coherent pattern of expectations that underlie new relationships between students, teachers, and the world of ideas.

Constructivism as Culture

Constructivism is premised on the belief that learners actively create, interpret, and reorganize knowledge in individual ways. These fluid intellectual transformations occur when students reconcile formal instructional experiences with their existing knowledge, with the cultural and social contexts in which ideas occur, and with a host of other influences that serve to mediate understanding. With respect to instruction, this belief suggests that students should participate in experiences that accommodate these ways of learning. Such experiences include problem-based learning, inquiry activities, dialogues with peers and teachers that encourage making sense of the subject matter, exposure to multiple sources of information, and opportunities for students to demonstrate their understanding in diverse ways.

However, before teachers and administrators adopt such practices, they should understand that constructivism cannot make its appearance in the classroom as a set of isolated instructional methods grafted on to otherwise traditional teaching techniques. Rather, it is a culture—a set of beliefs, norms, and practices that constitute the fabric of school life. This culture, like all other cultures, affects the way learners can interact with peers, relate to the teacher,
Images of Teaching: The Chains That Bind Us

Most of us are products of traditional instruction; as learners, we were exposed to teacher-centered instruction, fact-based subject matter, and a steady diet of drill and practice. Our personal histories furnish us with mental models of teaching, and these models of how we were taught shape our behavior in powerful ways. Teachers use these models to imagine lessons in their classrooms, develop innovations, and plan for learning. These images serve to organize sets of beliefs and guide curricular actions. Teachers are more likely to be guided not by instructional theories but by the familiar images of what is "proper" in classroom settings.

Unfortunately, the signs and symbols of teacher-centered education and learning by transmission, which are likely to be a part of teachers' personal histories, persist in classrooms today. In this environment, it is assumed that the more quiet and orderly the classrooms are, the more likely it is that learning is taking place. Individual desks face the front of the room, where the teacher occupies a privileged space of knowing authority; students work individually on identical, skill-based assignments to ensure uniformity of learning. Value statements are embedded everywhere in this environment.

Constructivist teachers envision themselves emerging boldly from the confines of this traditional classroom culture, but the vision first requires critical reflection. Teachers must ask themselves, "Is my role to dispense knowledge or to nurture independent thinkers? How do I show respect for the ideas of the students? Am I here to learn from the students?" Teachers must struggle to develop a new, well-articulated rationale for instructional decisions and cannot depend on their previous teaching or learning experiences for much help in shaping their choice of methods; shifting the centers of authority and activity in accordance with this rationale requires persistence. For example, teachers can be uncomfortable with their apparent lack of control as students engage with their peers during learning activities and may be unwilling to allow supervisors who visit the classroom to observe this kind of environment. Teachers may reconsider their ideas of student-centered learning in favor of conforming to the more traditional images of the teacher as the hub of classroom discourse and attention.

New Demands on the Teacher

Constructivist instruction, especially which is based on design tasks or problem solving, places high demands on the teacher's subject-matter understanding. The teacher must not only be familiar with the principles underlying a topic of study but must also be prepared for the variety of ways these principles can be explored.

For example, if students are studying density in science class, the teacher must support the understanding of one group of students who want to approach the concept from a purely abstract, mathematical perspective as they construct tables, equations, and graphs to develop their knowledge. In this case, the teacher must understand these different representations of information and how they are interrelated. Another group of students may plan to recount the story of the Titanic, emphasizing the role that density played in the visibility of the iceberg, the ballast of the ship, and the sinking itself. Here, the teacher must be intellectually agile, able to apply his or her mathematical understanding of density to a real-life, inevitably more complex situation.

Teachers in different subject areas may allow students varying degrees of latitude in exploring content and will differ in how they accept student "constructions" of core curricular ideas. Mathematics is characterized by rule-based propositions and skills that may be open to discovery via many experiential pathways. Most forms of mathematics problems, however, have only one right answer. And if students are allowed to explore problems by their own methods, teachers may find it difficult to see exactly how the students are making sense of the problem-solving process—not all constructions are created equal. Science and social studies present the same challenges, although science is less axiomatic than mathematics, and the issues explored in social studies are open to wider interpretation. Dealing with the "correctness" of student constructions is an ongoing concern, and the arguments have barely been introduced here; but reflection on these issues helps teachers develop a critical awareness of disciplinary "truths" and the viability of various ways of knowing the world.

In addition to the necessity for flexible subject-matter knowledge, constructivism places greater demands on teachers' pedagogical skill. Crafting
instruction based on constructivism is not as straightforward as it seems. Educators struggle with how specific instructional techniques (e.g., lecture, discussion, cooperative learning, problem-based learning, inquiry learning) fit into the constructivist model of instruction. Regardless of the particular techniques used in instruction, students will always construct and reorganize knowledge rather than simply assimilate information from teachers or textbooks. The question is not whether to use lecture or discussion, but how to use these techniques to complement rather than dominate student thinking. For example, constructivist principles suggest that students should experience the ideas, phenomena, and artifacts of a discipline before being exposed to formal explanations of them. Students might begin units of instruction in science class by manipulating a pendulum, in math class by constructing polygons, or in social studies by reading letters from Civil War battlefields. Only after these experiences do teachers and students together suggest terminology, explanations, and conceptual organization.

Even though designing instruction is important, constructivist teaching is less about the sequencing of events and more about responding to the needs of a situation. Teachers must employ a sophisticated range of strategies to support individual students’ understandings as they engage in the problem-based activities that characterize constructivist classrooms. These strategies include scaffolding, in which the task required of the learner is strategically reduced in complexity; modeling, in which the teacher either thinks aloud about how she would approach a problem; and coaching, guiding, and advising, which are loosely defined as providing learners with suggestions of varying degrees of explicitness. The teacher is challenged to select the proper strategy and implement it with skill.

Problem-based activities exemplify another core value of the constructivist culture—collaboration. Students are witness to and participate in one another’s thinking. Learners are exposed to the clear, cogent thinking of some peers as well as to the inevitable meandering, unreflective thought of others. Students do require training to function effectively in these groups. However, even with training, many capable students are simply not interested in helping their peers, and negative consequences of group work—such as bickering, exclusion, and academic freeloading—are common. These consequences can be minimized if the teacher is familiar with the principles of cooperative learning. And so, having students work together requires that the teacher have additional competencies in cooperative learning strategies and management skills particular to decentralized learning environments.

A final pedagogical challenge involves independent student projects. Depending on the degree of structure the teacher imposes in a classroom, students will have some latitude in choosing problems or design projects that relate to the theme under study. Often, students determine with the teacher suitable criteria for problems and for evidence of learning. Negotiation about criteria prompts questions such as: Is the problem meaningful? Important to the discipline? Complex enough? Does it relate to the theme under study? Does it require original thinking and interpretation, or is it simply fact finding? Will the resolution of this problem help us acquire the concepts and principles fundamental to the theme under study? Because curricular materials are often filled with prepared questions and tasks, teachers seldom have occasion to introduce their students to this idea of “problems about problems.” Clearly, teachers must develop their own ability to analyze problems by reflecting on the nature of the discipline and refining their ideas through extended dialogue with colleagues and experiences with students.

Logistical and Political Challenges

Effective forms of constructivist instruction call for major changes in the curriculum, in scheduling, and in assessment. When students are engaged in problem solving and are allowed to help guide their own learning, teachers quickly find that this approach outgrows the 50-minute class period. This situation often means that the teacher will have to negotiate with administrators and other teachers about the possibilities of block scheduling and integrating curricula. If teachers can team with partners from other subject areas, they can extend the length of their class periods and develop more comprehensive themes for study that bridge the worlds of science, social studies, math, and the arts.

The purpose of integrated curricula and extended class periods is to allow students to engage in learning activities that will help them develop deep and elaborate understandings of subject matter. These understandings may be quite different in nature from student to student. Thus there is a need for forms of assessment that allow students to demonstrate what they know and that connect with rigorous criteria of excellence. These are not the paper-and-pencil, objective tests in which learners recognize rather than generate answers or create brief responses to questions in which they have little personal investment. Rather, students are required to produce journals, research reports, physical models, or performances in the forms of plays, debates, dances, or other artistic representations. Assessing these products and performances requires well-designed, flexible rubrics to maintain a link between course objectives and student learning. Designing these rubrics (through negotiation with students) builds consensus about what “purpose” means in a learning activity, about the nature of meaningful criteria, and about how assessments reflect the efficacy of the teacher as a promoter of understanding.

The final and perhaps most politically sensitive issue confronting teachers is that the diversity of understandings emerging from constructivist instruction does not always seem compatible with state and local standards. For example, student groups engaged in science projects on photosynthesis may have radically different approaches to developing their understanding of this phenomenon. One group may choose to focus on chemical reactions at the molecular level while another group may examine how oxygen and carbon dioxide are exchanged between animals and plants on a global scale. These two groups will take disconcertingly divergent paths to understanding photosynthesis.

This kind of project-based learning must be skillfully orchestrated so that, however students choose to investigate and seek resolutions to problems,
they will acquire an understanding of key principles and concepts as well as the critical thinking skills that are assessed on standardized tests. Proponents of project-based learning have demonstrated that these kinds of learning outcomes are entirely possible.\textsuperscript{13} Artful guidance by the teacher notwithstanding, it can be unsettling for teachers to reconcile the language of "objectives, standards, and benchmarks" with the diversity of understandings that emerge in a constructivist classroom.

**Conclusions and Recommendations**

How does a school community support the instructional expertise, academic freedom, and professional collaboration necessary to sustain a constructivist culture? First, a core group of committed teachers must systematically investigate constructivism in order to understand its principles and its limitations. The ideas behind constructivism seem intuitive and sensible, but teachers and administrators must go beyond the hyperbole and the one-shot-workshop acquaintance with constructivism. Interested faculty members should conduct a thorough reading campaign, and at least one or two teachers should extend their experience by participating in advanced workshops, attending classes, and witnessing how constructivist cultures operate in other schools. Stipends and released time can be provided for a cadre of lead teachers to attend classes, do extra reading, adapt curriculum, and offer their own workshops to fellow teachers. Workshop topics could include the constructivist implementation of cooperative learning, scaffolding techniques, problem-based learning, or multifaceted assessment strategies.

The faculty members must openly discuss their beliefs about learners and about their roles as teachers. If these beliefs are left unexamined or unchallenged, then individuals have feeble grounding for their personal philosophies. Just as problematically then, everyone operates on different, untested assumptions. And all decisions about curriculum, instruction, and assessment are built on such assumptions.

Personal philosophies of education are particularly important when constructivism is used to furnish underlying principles—important because constructivism means risk taking and a divergence from business as usual. Sooner or later, teachers will be asked, "Why do you teach that way?" Whatever form that question takes, teachers must be able to justify the choices they make. This task will not be as intimidating if the teacher has mindfully linked the aspects of his or her constructivist philosophy to the various dimensions of classroom experience and to the larger goals of education.

The process of making these beliefs explicit can also strengthen teachers' resolve to move beyond the traditional images of what is proper and possible in the classroom. It can make clear to them the characteristics and limitations of the system that encouraged images of teachers as dispensers of information and students as passive recipients of knowledge. Accordingly, teachers must try to arrive at a new vision of their role. This vision must include serving as a facilitator of learning who responds to students' needs with a flexible understanding of subject matter and a sensitivity to how the student is making sense of the world.

Teachers and their principals must be prepared to go on record with these beliefs in discussions with parent groups and the school board. Educators should always have a rationale for what and how they teach; however, because constructivism is so contrary to historical norms, it is even more important in this case that the rationale be well founded, coherent, and applicable to the current school context. Community members will undoubtedly be suspicious of teaching methods that are so different from the ones they remember as students and that sound too much like a laissez-faire approach to learning.

Administrators must also take the lead in supporting a "less is more" approach. The compulsion to cover material is antithetical to the aim of constructivist instruction—the deep and elaborate understanding of selected core ideas. Textbooks, which are often the de facto curriculum, have become encyclopedic, and administrators should make teachers feel secure about using a variety of other resources. They should also provide funds to purchase alternative classroom materials. Furthermore, administrators must be open to suggestions for block scheduling and for integrating curricula, perhaps even arranging for interested teachers to be placed together in team-teaching situations that are premised on the constructivist approach.

To strengthen the school's position on accountability, assessment specialists who understand constructivism can be brought in to connect local standards with instruction and with evidence that learning is taking place. Teachers will undoubtedly appreciate assistance in investigating and evaluating a variety of assessment strategies.

The list of challenges I have described here is not exhaustive. There are certainly others, and the challenges outnumber the solutions at the moment. But articulating these challenges is a significant step in helping educators create and sustain a classroom culture that values diversity in learning and offers a new vision of the roles of teachers and learners—the culture of constructivism.

**Notes**

The first step in strengthening education in America is to avoid the premature polarizations that arise when educational policy is confused with political ideology. In the United States today, the hostile political split between liberals and conservatives has infected the public debate over education to such an extent that straight thinking is made difficult.

I would label myself a political liberal and an educational conservative, or perhaps more accurately, an educational pragmatist. Political liberals really ought to oppose progressive educational ideas because they have led to practical failure and greater social inequity. The only practical way to achieve liberalism's aim of greater social justice is to pursue conservative educational policies.

That is not a new idea. In 1932, the Communist intellectual Antonio Gramsci, writing from jail (having been imprisoned by Mussolini), was one of the first to detect the paradoxical consequences of the new "democratic" education, which stressed "life relevance" and other naturalistic approaches over hard work and the transmission of knowledge. Il Duce's educational minister, Giovanni Gentile, was, in contrast to Gramsci, an enthusiastic proponent of the new ideas emanating from Teachers College, Columbia University, in the United States.

Gramsci saw that to denominate such methods as phonics and memorization of the multiplication table as "conservative," while associating them with the political right, amounted to a serious intellectual error. That was the nub of the standoff between the two most distinguished educational theorists of the political Left—Gramsci and Paulo Freire. Freire, like Gramsci a hero of humanity, devoted himself to the cause of educating the oppressed, particularly in his native Brazil, but his writings also have been influential in the United States. Like other educational progressivists, Freire rejected traditional teaching methods and subject matters, objecting to the "banking theory of schooling," whereby the teacher provides the child with a lot of "rote-learned" information. The consequence of the conservative approach, according to Freire, is to numb the critical faculties of students and to preserve the oppressor class. He called for a change of both methods and content—new content...