# EDUCATIONAL LEADERSHIP

The Constructivist Classroom

## The Courage to Be Constructivist

*Martin G. Brooks and Jacqueline Grennon Brooks*

**In the race to prepare for high-stakes state assessments, students are losing out on instructional practices that foster meaningful learning.**

For years, the term *constructivism* appeared only in journals read primarily by philosophers, epistemologists, and psychologists. Nowadays, *constructivism* regularly appears in the teachers' manuals of textbook series, state education department curriculum frameworks, education reform literature, and education journals. Constructivism now has a face and a name in education.

A theory of learning that describes the central role that learners' ever-transforming mental schemes play in their cognitive growth, constructivism powerfully informs educational practice. Education, however, has deep roots in other theories of learning. This history constrains our capacity to embrace the central role of the learner in his or her own education. We must rethink the very foundations of schooling if we are to base our practice on our understandings of learners' needs.

One such foundational notion is that students will learn on demand. This bedrock belief is manifested in the traditional scope and sequence of a typical course of study and, more recently, in the new educational standards and assessments. This approach to schooling is grounded in the conviction that all students can and will learn the same material at the same time. For some students, this approach does indeed lead to the construction of knowledge. For others, however, it does not.

The people working directly with students are the ones who must adapt and adjust lessons on the basis of evolving needs. Constructivist educational practice cannot be realized without the classroom teacher's autonomous, ongoing, professional judgment. State education departments could and should support good educational practice. But too often they do not.

Their major flaw is their focus on high-stakes accountability systems and the ramifications of that focus on teachers and students. Rather than set standards for professional practice and the development of local capacity to enhance student learning, many state education departments have placed even greater weight on the same managerial equation that has failed

repeatedly in the past: State Standards = State Tests; State Test Results = Student Achievement; Student Achievement = Rewards and Punishments.

We are not suggesting that educators should not be held accountable for their students' learning. We believe that they should. Unfortunately, we are not holding our profession accountable for learning, only for achievement on high-stakes tests. As we have learned from years of National Assessment of Educational Progress research, equating lasting student learning with test results is folly.

**The Emerging Research from Standards-Driven States**

In recent years, many states have initiated comprehensive educational reform efforts. The systemic thinking that frames most standards-based reform efforts is delectably logical: Develop high standards for all students; align curriculum and instruction to these standards; construct assessments to measure whether all students are meeting the standards; equate test results with student learning; and reward schools whose students score well on the assessments and sanction schools whose students don't.

Predictably, this simple and linear approach to educational reform is sinking under the weight of its own flaws. It is too similar to earlier reform approaches, and it misses the point. Educational improvement is not accomplished through administrative or legislative mandate. It is accomplished through attention to the complicated, idiosyncratic, often paradoxical, and difficult to measure nature of learning.

A useful body of research is emerging from the states. With minor variations, the research indicates the following:

- Test scores are generally low on the first assessment relating to new standards. Virginia is an extreme example of this phenomenon: More than 95 per- cent of schools failed the state's first test. In New York, more than 50 per- cent of the state's 4th graders were deemed at risk of not graduating in 2007 after taking that state's new English language arts test in 1999.

- Failure, or the fear of failure, breeds success on subsequent tests. After the first administration of most state assessments, schools' scores rise because educators align curriculum closely with the assessments, and they focus classroom instruction directly on test-taking strategies.

- To increase the percentages of students passing the state assessments—and to keep schools off the states' lists of failing schools—local district spending on student remediation, student test-taking skills, and faculty preparation for the new assessments increases.

- Despite rising test scores in sub-sequent years, there is little or no evidence of increased student learning. A recent study

by Kentucky's Office of Educational Accountability (Hambleton et al., 1995) suggests that test-score gains in that state are a function of students' increasing skills as test takers rather than evidence of increased learning.

**When Tests Constrict Learning**

Learning is a complex process through which learners constantly change their internally constructed understandings of how their worlds function. New information either transforms their current beliefs—or doesn't. The efficacy of the learning environment is a function of many complex factors, including curriculum, instructional methodology, student motivation, and student developmental readiness. Trying to capture this complexity on paper-and-pencil assessments severely limits knowledge and expression.

Inevitably, schools reduce the curriculum to only that which is covered on tests, and this constriction limits student learning. So, too, does the un- deviating, one-size-fits-all approach to teaching and assessment in many states that have crowned accountability king. Requiring all students to take the same courses and pass the same tests may hold political capital for legislators and state-level educational policymakers, but it contravenes what years of painstaking research tells us about student learning. In discussing the inordinate amount of time and energy devoted to preparing students to take and pass high-stakes tests, Angaran (1999) writes

> Ironically, all this activity prepares them for hours of passivity. This extended amount of seat time flies in the face of what we know about how children learn. Unfortunately, it does not seem to matter. It is, after all, the Information Age. The quest for more information drives us forward. (P. 72)

We are not saying that student success on state assessments and classroom practices designed to foster understanding are inherently contradictory. Teaching in ways that nurture students' quests to resolve cognitive conflict and conquer academic challenges fosters the creative problem solving that most states seek. However, classroom practices designed to prepare students for tests clearly do not foster deep learning that students apply to new situations. Instead, these practices train students to mimic learning on tests.

Many school districts question the philosophical underpinnings of the dominant test-teach-test model of education and are searching for broader ways for students to demonstrate their knowledge. However, the accountability component of the standards movement has caused many districts to abandon performance-based assessment practices and refocus instead on preparing students for paper-and-pencil tests. The consequences for districts and their students are too great if they don't.

**Constructivism in the Classroom**

Learners control their learning. This simple truth lies at the heart of the constructivist approach to education.

As educators, we develop classroom practices and negotiate the curriculum to enhance the likelihood of student learning. But controlling what students learn is virtually impossible. The search for meaning takes a different route for each student. Even when educators structure classroom lessons and curriculums to ensure that all students learn the same concepts at the same time, each student still constructs his or her own unique meaning through his or her own cognitive processes. In other words, as educators we have great control over what we teach, but far less control over what students learn.

Shifting our priorities from ensuring that all students learn the same concepts to ensuring that we carefully analyze students' understandings to customize our teaching approaches is an essential step in educational reform that results in increased learning. Again, we must set standards for our own professional practice and free students from the anti-intellectual training that occurs under the banner of test preparation.

The search for understanding motivates students to learn. When students want to know more about an idea, a topic, or an entire discipline, they put more cognitive energy into classroom investigations and discussions and study more on their own. We have identified five central tenets of constructivism (Grennon Brooks & Brooks, 1993).

- First, constructivist teachers seek and value students' points of view. Knowing what students think about concepts helps teachers formulate classroom lessons and differentiate instruction on the basis of students' needs and interests.

- Second, constructivist teachers structure lessons to challenge students' suppositions. All students, whether they are 6 or 16 or 60, come to the classroom with life experiences that shape their views about how their worlds work. When educators permit students to construct knowledge that challenges their current suppositions, learning occurs. Only through asking students what they think they know and why they think they know it are we and they able to confront their suppositions.

- Third, constructivist teachers recognize that students must attach relevance to the curriculum. As students see relevance in their daily activities, their interest in learning grows.

- Fourth, constructivist teachers structure lessons around big ideas, not small bits of information. Exposing students to wholes first helps them determine the relevant parts as they refine their understandings of the wholes.

- Finally, constructivist teachers assess student learning in the context of daily classroom investigations, not as separate events. Students demonstrate their knowledge every day in a variety of ways. Defining understanding as only that which is capable of being measured by paper-and-pencil assessments administered under strict security perpetuates false and counterproductive myths about academia, intelligence, creativity, accountability, and knowledge.

**Opportunities for Constructing Meaning**

Recently, we visited a classroom in which a teacher asked 7th graders to reflect on a poem. The teacher began the lesson by asking the students to interpret the first two lines. One student volunteered that the lines evoked an image of a dream. "No," he was told, "that's not what the author meant." Another student said that the poem reminded her of a voyage at sea. The teacher reminded the student that she was supposed to be thinking about the first two lines of the poem, not the whole poem, and then told her that the poem was not about the sea. Looking out at the class, the teacher asked, "Anyone else?" No other student raised a hand.

In another classroom, a teacher asked 9th graders to ponder the effect of temperature on muscle movement. Students had ice, buckets of water, gauges for measuring finger-grip strength, and other items to help them consider the relationship. The teacher asked a few framing questions, stated rules for handling materials safely, and then gave the students time to design their experiments. He posed different questions to different groups of students, depending on their activities and the conclusions that they seemed to be drawing. He continually asked students to elaborate or posed contradictions to their responses, even when they were correct.

As the end of the period neared, the students shared initial findings about their investigations and offered working hypotheses about the relationship between muscle movement and temperature. Several students asked to return later that day to continue working on their experiments.

Let's consider these two lessons. In one case, the lesson was not conducive to students' constructing deeper meaning. In the other case, it was. The 7th grade teacher communicated to her students that there is one interpretation of the poem's meaning, that she knew it, and that only that interpretation was an acceptable response. The students' primary quest, then, was to figure out what the teacher thought of the poem.

The teacher spoke to her students in respectful tones, acknowledging each one by name and encouraging their responses. However, she politely and calmly rejected their ideas when they failed to conform to her views. She rejected one student's response as a misinterpretation. She dismissed another student's response because of a procedural error: The response focused on the whole poem, not on just the designated two lines.

After the teacher told these two students that they were wrong, none of the other students volunteered interpretations, even though the teacher encouraged more responses. The teacher then proceeded with the lesson by telling the students what the poet really meant. Because only two students offered comments during the lesson, the teacher told us that a separate test would inform her whether the other students understood the poem.

In the second lesson, the teacher withheld his thoughts intentionally to challenge students to develop their own hypotheses. Even when students' initial responses were correct, the teacher challenged their thinking, causing many students to question the correctness of their initial responses and to investigate the issue more deeply.

Very few students had awakened that morning thinking about the relationship between muscle movement and temperature. But, as the teacher helped students focus their emerging, somewhat disjointed musings into a structured investigation, their engagement grew. The teacher provoked the students to search for relevance in a relationship they hadn't yet considered by framing the investigation around one big concept, providing appropriate materials and general questions, and helping the students think through their own questions. Moreover, the teacher sought and valued his students' points of view and used their comments to assess their learning. No separate testing event was required.

**What Constructivism Is and Isn't**

As constructivism has gained support as an educational approach, two main criticisms have emerged. One critique of constructivism is that it is overly permissive. This critique suggests that constructivist teachers often abandon their curriculums to pursue the whims of their students. If, for example, most of the students in the aforementioned 9th grade science class wished to discuss the relationship between physical exercise and muscle movement rather than pursue the planned lesson, so be it. In math and science, critics are particularly concerned that teachers jettison basic information to permit students to think in overly broad mathematical and scientific terms.

The other critique of constructivist approaches to education is that they lack rigor. The concern here is that teachers cast aside the information, facts, and basic skills embedded in the curriculum—and necessary to pass high-stakes tests—in the pursuit of more capricious ideas. Critics would be concerned that in the 7th grade English lesson described previously, the importance of having students understand the one true main idea of the poem would fall prey to a discussion of their individual interpretations.

Both of these critiques are silly caricatures of what an evolving body of research tells us about learning. Battista (1999), speaking specifically of mathematics education, writes,

> Many . . . conceive of constructivism as a pedagogical stance that entails a type of non-rigorous, intellectual anarchy that lets students pursue whatever interests them and invent and use any mathematical methods they wish, whether those methods are correct or not. Others take constructivism to be synonymous with "discovery learning" from the era of "new math," and still others see it as a way of teaching that focuses on using manipulatives or cooperative learning. None of these conceptions is correct. (P. 429)

Organizing a constructivist classroom is difficult work for the teacher and requires the rigorous intellectual commitment and perseverance of students. Constructivist teachers recognize that students bring their prior experiences with them to each

school activity and that it is crucial to connect lessons to their students' experiential repertoires. Initial relevance and interest are largely a function of the learner's experiences, not of the teacher's planning. Therefore, it is educationally counterproductive to ignore students' suppositions and points of view. The 7th grade English lesson is largely nonintellectual. The 9th grade science lesson, modeled on how scientists make state-of-the-art science advancements, is much more intellectually rigorous.

Moreover, constructivist teachers keep relevant facts, information, and skills at the forefront of their lesson planning. They usually do this within the context of discussions about bigger ideas. For example, the dates, battles, and names associated with the U.S. Civil War have much more meaning for students when introduced within larger investigations of slavery, territorial expansion, and economics than when presented for memorization without a larger context.

State and local curriculums address *what* students learn. Constructivism, as an approach to education, addresses *how* students learn. The constructivist teacher, in mediating students' learning, blends the *what* with the *how*. As a 3rd grader in another classroom we visited wrote to his teacher, "You are like the North Star for the class. You don't tell us where to go, but you help us find our way." Constructivist classrooms demand far more from teachers and students than lockstep obeisance to prepackaged lessons.

**The Effects of High-Stakes Accountability**

As we stated earlier, the standards movement has a grand flaw at the nexus of standards, accountability, and instructional practice. Instructional practices designed to help students construct meaning are being crowded out of the curriculum by practices designed to prepare students to score well on state assessments. The push for accountability is eclipsing the intent of standards and sound educational practice.

Let's look at the effects of high-stakes accountability systems. Originally, many states identified higher-order thinking as a goal of reform and promoted constructivist teaching practices to achieve this goal. In most states, how- ever, policymakers dropped this goal or subsumed it into other goals because it was deemed too difficult to assess and quantify. Rich evidence relating to higher-order thinking is available daily in classrooms, but this evidence is not necessarily translatable to paper-and-pencil assessments. High-stakes accountability systems, therefore, tend to warp the original visions of reform.

Education is a holistic endeavor. Students' learning encompasses emerging understandings about themselves, their relationships, and their relative places in the world. In addition to academic achievement, students develop these understandings through nonacademic aspects of schooling, such as clubs, sports, community service, music, arts, and theater. However, only that which is academic and easily measurable gets assessed, and only that which is assessed is subject to rewards and punishments. Jones and Whitford (1997) point out that Kentucky's original educational renewal initiative included student self-sufficiency and responsible group membership as goals, but these goals were dropped because they were

deemed too difficult to assess and not sufficiently academic.

Schools operating in high-stakes accountability systems typically move attention away from principles of learning, student-centered curriculum, and constructivist teaching practices. They focus instead on obtaining higher test scores, despite research showing that higher test scores are not necessarily indicative of increased student learning.

Historically, many educators have considered multiple-choice tests to be the most valid and reliable form of assessment—and also the narrowest form of assessment. Therefore, despite the initial commitment of many states to performance assessment, which was to have been the cornerstone of state assessment efforts aligned with broader curriculum and constructivist instructional practices, multiple-choice questions have instead remained the coin of the realm. As Jones and Whitford (1997) write about Kentucky,

> The logic is clear. The more open and performance based an assessment is, the more variety in the responses; the more variety in the responses, the more judgment is needed in scoring; the more judgment in scoring, the lower the reliability. . . . At this point, multiple-choice items have been reintroduced, performance events discontinued. (P. 278)

Ironically, as state departments of education and local newspapers hold schools increasingly accountable for their test results, local school officials press state education departments for greater guidance about material to be included on the states' tests. This phenomenon emboldens state education departments to take an even greater role in curriculum development, as well as in other decisions typically handled at the local level, such as granting high school diplomas, determining professional development requirements for teachers, making special education placements, and intervening academically for at-risk students. According to Jones and Whitford (1997),

> [In Kentucky] there has been a rebound effect. Pressure generated by the state test for high stakes accountability has led school-based educators to pressure the state to be more explicit about content that will be tested. This in turn constrains local school decision making about curriculum. This dialectical process works to increase the state control of local curriculum. (P. 278)

**Toward Educational Reform**

Serious educational reform targets cognitive changes in students' thinking. Perceived educational reform targets numerical changes in students' test scores. Our obsession with the perception of reform, what Ohanian (1999) calls "the mirage theory of education," is undermining the possibility of serious reform.

History tells us that it is likely that students' scores on state assessments will rise steadily over the next decade and that meaningful indexes of student learning generally will remain flat. It is also likely that teachers, especially those teaching in the grades in which high-stakes assessments are administered, will continue to narrow their curriculum to match what is covered on the assessments and to use instructional practices designed to place testing information directly in their students'

heads.

We counsel advocacy for children. And vision. And courage.

Focus on student learning. When we design instructional practices to help students construct knowledge, students learn. This is our calling as educators.

Keep the curriculum conceptual. Narrowing curriculum to match what is covered on state assessments results in an overemphasis on the rote memorization of discrete bits of information and pushes aside big ideas and intellectual curiosity. Keep essential principles and recurring concepts at the center.

Assess student learning within the context of daily instruction. Use students' daily work, points of view, suppositions, projects, and demonstrations to assess what they know and don't know, and use these assessments to guide teaching.

Initiate discussions among administrators, teachers, parents, school boards, and students about the relationship among the state's standards, the state's assessments, and your district's mission. Ask questions about what the assessments actually assess, the instructional practices advocated by your district, and the ways to teach a conceptual curriculum while preparing students for the assessments. These are discussions worth having.

Understand the purposes of accountability. Who wants it, and why? Who is being held accountable, and for what? How are data being used or misused? What are the consequences of accountability for all students, especially for specific groups, such as special education students and English language learners?

Students must be permitted the freedom to think, to question, to reflect, and to interact with ideas, objects, and others—in other words, to construct meaning. In school, being wrong has always carried negative consequences for students. Sadly, in this climate of increasing accountability, being wrong carries even more severe consequences. But being wrong is often the first step on the path to greater understanding.

We observed a 5th grade teacher return a test from the previous day. Question 3 was, "There are 7 blue chips and 3 green chips in a bag. If you place your hand in the bag and pull out 1 chip, what is the probability that you will get a green chip?" One student wrote,"You probably won't get one." She was "right"—and also "wrong." She received no credit for the question.

**References**

Angaran, J. (1999, March). Reflection in an age of assessment. *Educational Leadership, 56,* 71–72.

Grennon Brooks, J., & Brooks, M. G. (1993). *In search of understanding: The case for constructivist classrooms.* Alexandria, VA: ASCD.

Hambleton, R., Jaeger, R. M., Koretz, D., Linn, R. L., Millman, J., & Phillips, S. E. (1995). *Review of the measurement quality of the Kentucky instructional results information system 1991–1994.* (Report prepared for the Kentucky General Assembly.) Frankfort, KY: Office of Educational Accountability.

Jones, K., & Whitford, B. L. (1997, December). Kentucky's conflicting reform principles: High stakes accountability and student performance assessment. *Phi Delta Kappan, 78*(4), 276–281.

Ohanian, S. (1999). *One size fits few.* Portsmouth, NH: Heinemann.

---

**Martin G. Brooks** is Superintendent, Valley Stream Central High School District, One Ken Rd., Valley Stream, NY 11582.
**Jacqueline Grennon Brooks** (e-mail: jgbrooks@notes.cc.sunysb.edu) is Associate Professor, Professional Education Program, State University of New York at Stony Brook, Stony Brook, NY 11794–3733.