

Toward A Pragmatic Discourse of Constructivism: Reflections on Lessons from Practice

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In the past few decades, a constructivist discourse has emerged as a very powerful model for explaining how knowledge is produced in the world, as well as how students learn.¹ For constructivists like Joe Kincheloe (2000) and Barbara Thayer-Bacon (1999), knowledge about the world does not simply exist out there, waiting to be discovered, but is rather constructed by human beings in their interaction with the world. “The angle from which an entity is seen, the values of the researcher that shape the questions he or she asks about it, and what the researcher considers important are all factors in the *construction* of knowledge about the phenomenon in question” (Kincheloe, 2000, 342). Thayer-Bacon (1999) invoke a quilting bee metaphor to highlight the fact that knowledge is constructed by people who are socially and culturally embedded, rather than isolated individuals. To assert that knowledge is constructed, rather than discovered, implies that it is neither independent of human knowing nor value free. Indeed, constructivists believe that what is deemed knowledge is always informed by a particular perspective and shaped by various implicit value judgments.

According to Mark Windschitl (1999), constructivism is based on the assertion that learners actively create, interpret, and reorganize knowledge in individual ways. “These fluid intellectual transformations,” he maintain, “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” (752). In this view, teaching should promote experiences that require students to become active, scholarly participators in the learning process. Windschitl (1999) goes on to note that “such experiences include problem-based learning, inquiry activities, dialogues with

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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” (752).

To be sure, such pedagogical recommendations make a great deal of sense. In fact, constructivist teaching practices are becoming more prevalent in teacher education programs and public schools across the nation, while demonstrating significant success in promoting student learning (e.g., Davis and Sumara, 2002; Fang and Ashley, 2004; Gordon and O’Brien, 2007; Marlowe and Page, 2005; Oxford, 1997; Richardson, 1997). At the same time, there is an enormous body of work in education on constructivism that tends to be fragmented and uncritical. As D. C. Phillips (1995) note, “because there are so many versions of constructivism, with important overlaps but also with major differences, it is difficult to see the forest for the trees” (7). Phillips’ point is that unless one can find a way to categorize the different forms of constructivism, it will be difficult to obtain a sense of the whole. In my preliminary review of the literature on constructivism and education, I have found this worldview associated with close to twenty theorists from different historical periods and diverse philosophical traditions. The theorists include Plato, Vico, Berkeley, Locke, Hegel, Kant, Rousseau, Pestalozzi, Piaget, Vygotsky, von Glasersfeld, Kuhn, Dewey, Freire, Freud, Foucault, Derrida, and Saussure.² In addition, my review suggests that there are quite a few different types of constructivism that have some common elements, but also significant differences, such as individual, social, psychological, cognitive, radical, critical, and trivial constructivism, among others.

One of the serious problems with the fragmented and incoherent character of the literature on constructivism, as Davis and Sumara (2002, 410) point out, is that it opens itself to the charge that it is a kind of “anything goes” relativist discourse. The lack of clarity about what it means to be a constructivist or some shared understanding of the major tenets of this theory have contributed to a growing number of misleading critiques of this worldview. For instance, based on the misguided assumption that constructivism stands for child-centered teaching practices, some researchers have argued that there is a lack of empirical evidence that demonstrates the effectiveness of constructivist teaching practices (Matthews, 2003, 51). Other researchers mistakenly assume that teachers who rely on a constructivist model need not have any expertise in a particular body of knowledge. According to Baines and Stanley (2000), constructivist teachers do very little formal teaching but merely “set up the learning environment, know student preferences, guide student investigations, and then get out of the way” (330).

What researchers need, then, is a clearer and more coherent notion of constructivism that is not merely a set of abstract ideas about knowledge and human existence, but is pragmatic and grounded in good teaching practices. The pragmatic constructivist discourse I have in mind is not only descriptive or explanatory, but also prescriptive, in the sense that it speaks directly to the practical concerns

of educators. A descriptive educational theory is usually understood as a series of epistemological and ontological assumptions, that is, a set of assumptions about knowledge, learning, and students. In contrast, a prescriptive theory includes not only theoretical statements about knowledge and learning but also practical recommendations and advice for teachers. Thus far, as Davis and Sumara assert, constructivist theories have been mainly descriptive, not prescriptive. At best, these theories are able to tell educators what not to do, rather than what ought to be done in schools and classrooms.

In what follows, I attempt to develop a pragmatic discourse of constructivism, one that is prescriptive and that takes seriously the lessons one can learn about this theory from some good examples of constructivist teaching. After all, if one truly believes with Dewey (1904/1974) that, in education, theory, and practice are interrelated, it is worthwhile to spend some time reflecting on how constructivist teaching and learning can inform the theory of constructivism, rather than just dwelling on how the latter impacts the former.³ Unlike most conceptual examinations of constructivism that have attempted to present new interpretations of this theory and then speculated on the practical implications of this new vision, here I take a very different approach. I begin my analysis by examining some of the main reasons that account for the fact that constructivist discourses have not had a bigger impact on educational practice. Next, I discuss a number of successful examples of constructivist teaching in different contexts. In the final part of this article, I begin to lay out a pragmatic conception of constructivism, which is informed by the lessons that can be gleaned from good teaching, as well as by the insights of Dewey, Piaget, Vygotsky and Freire.

CONSTRUCTIVIST DISCOURSES AND EDUCATIONAL PRACTICE

In their article “Constructivist Discourses and the Field of Education: Problems and Possibilities,” Davis and Sumara (2002) argue that constructivist discourses are not, for the most part, educational discourses. Their point is not that subject-centered (e.g., Piaget) and social constructivists (e.g., Vygotsky) have nothing significant to offer educators. Rather, their assertion is that “Theories developed in psychology, sociology, cultural studies or elsewhere cannot be unproblematically transplanted into the field of education. As with subject-centered constructivisms, social constructivist discourses speak to, but are not necessarily fitted or aligned with, the concerns and projects of education” (417).

The problem, according to Davis and Sumara (2002), is that theories created in one academic discipline cannot be easily transferred to another without taking into account the fact that the two fields may have very different concerns, goals, and concepts. Moreover, they claim that, unlike behaviorist and mental/cognitive

theories, many constructivist perspectives were never intended as sources of practical advice. Instead, Davis and Sumara believe that most constructivist discourses function as critiques of current educational practice. In contrast, they argue that behaviorist and mental/cognitive theories do seem “to speak more directly to the practical concerns of educators” (417). For instance, behaviorist teaching is able to address the need for measurable goals and outcomes in education. Still, I think that Davis and Sumara may be downplaying the fact that, much like constructivist theories, behaviorism cannot be uncritically applied to education, as evidenced by the criticism that this model received after some of its main concepts, like *conditioning*, *reward*, and *punishment* were appropriated into the field of classroom management (e.g. Kohn, 1996).

More importantly, I believe that Davis and Sumara (2002) overlook several other reasons that help explain why constructivist theories have not played a more significant role in shaping educational practice. First is the issue already mentioned before: that, presently, there is a wide range of constructivist discourses, which tend to be fragmented and loosely defined. The current lack of clarity and coherent organization that characterizes the literature on constructivism, which Phillips (1995) noted, probably contributes to the relatively limited role that constructivist ideas have had in influencing educational practice. To use a Socratic argument, “If one doesn’t really know what constructivism means in an educational context, how can one talk about its implications for teaching and learning?”

Second is the fact that teachers’ experience and knowledge are not generally considered legitimate resources that can be used to evaluate and revise educational theory. In *Teachers as Researchers: Qualitative Inquiry as a Path to Empowerment*, Joe Kincheloe (1991) captures this perception about teachers quite eloquently:

Even though the practitioner may be in the school every day, engaged in an intensely personal relationship with students, he or she is simply incapable of conducting research in the situation. Research and theory building are the domains of the academic expert—teachers should stick to the execution of their tasks. Such elitism precludes teacher-directed research and the democratization of the workplace; it reinforces authoritarian hierarchical distinctions which disempower teachers and ultimately their students. (12–13)

Kincheloe (1991) is talking about the common misconception that teachers are mere practitioners who may perform a necessary social function, but should be excluded from participating in researching and theorizing about essential issues like the goals of education, the best ways of achieving these goals, and what constitutes teacher and student competence. Because much of what counts as educational research is oblivious to the valuable insights that teachers possess, such research is abstracted from the lived world of students in classrooms and schools. Ultimately, the view that teachers are mere practitioners and not researchers helps

perpetuate the gulf between theory and practice in education. Educational theories are viewed by many teachers as ideal and abstract philosophies that are very different, to say the least, from the reality of schools and classrooms. And teaching is considered in various academic circles as mere technical or managerial work, but certainly not an intellectual or scholarly profession capable of producing theory.

This disconnection between theory and practice in education does not disappear when one focuses one's attention on the relationship between constructivism and constructivist teaching and learning. On the one hand, many current constructivist discourses make very few references to the lessons that can be learned from the cases of excellent constructivist teachers. The implications that they draw from theoretical discussions for the practical realm tend to be very generic. As Davis and Sumara (2002) write, "most theoretical constructivist discourses offer virtually no direct, practical advice to teachers" (420). On the other hand, quite a few teachers who rely on constructivist teaching methods are not fully aware of the epistemological and ontological assumptions of constructivism. They may be skilled at facilitating active learning experiences for their students or designing authentic assessments, but lack a clear understanding of why such experiences are so important and how they are different from more traditional learning models. Mark Windschitl (2002) notes that without a kind of working understanding of the concepts of constructivism, "teachers cannot be expected to link constructivist objectives for learning with appropriate types of instruction and assessment or to adapt constructivist principles to their particular classroom contexts" (138).

Besides the fact that many teachers who use constructivist teaching practices have not fully internalized the concepts of this theory, there is also the issue that constructivist teaching is much more complex and unpredictable than traditional teacher-directed instruction. Cohen (1988) observes that teachers who choose this path "must work harder, concentrate more, and embrace larger pedagogical responsibilities than if they only assigned text chapters and seatwork" (255). Beginning teachers, in particular, who are struggling with issues of classroom management, familiarity with the curriculum, and adjusting to the culture of the school, often find it difficult to implement a constructivist model in their classroom. And research shows that even experienced educators have a hard time putting this type of instruction into practice because of the multiple challenges that it poses for teachers, such as managing classroom interaction, understanding content, and assessing student knowledge (Windschitl 2002, 143–150).

Finally, it is important to keep in mind that the cultures of many schools, as well as the current political educational climate, contribute to the fact that constructivist theories have not played a more significant role in shaping educational practice. The term *school culture* usually refers to a framework of norms, expectations, and values that shape all the activities that occur in schools including teaching and learning. Researchers have shown that the culture that exists in many American public schools is not very supportive of constructivist teaching and learning

practices. For instance, in a study of middle schools undergoing reforms, Oakes et al. (2000) found that “most teachers, administrators, and parents expected an educative classroom to be quiet and orderly, with students seated and not talking to each other. Engagement meant that students were attentive but without speaking, gesturing, building things, or moving about. Heterogeneous groupings were heavily resisted” (cited in Windschitl, 2002, 150–151).

The current political climate in education in the United States, which emphasizes standardization and testing at the expense of teacher autonomy, initiative, and creativity, is also at odds with the basic principles of constructivism. Many critics of the standards movement have charged that the new standardized tests further increase the pressures on teachers to teach to the test (e.g. Elmore 2002; Gordon 2005). These critics feel that such test-driven instruction results in a pedagogy that is based on drill and memorization, sacrifices a broad and more complex curriculum, and contributes to the estrangement of many students from learning. The point that is relevant in this context is simply that the current political climate, which underscores standards, testing, and accountability, is not very supportive of teachers who wish to implement constructivist models of learning.

All of the reasons previously mentioned suggest that constructivist theorists face many obstacles if they wish to play a more significant role in shaping educational practice. Still, as the burgeoning literature on constructivism indicates, more and more educators are attempting to implement this approach. Hence, it may be instructive to look closely at some examples of successful constructivist teaching and learning and at the implications that these cases have for constructivist theory. In what follows, I focus on two examples from different contexts, ones that are based on constructivist theory but that also help to deepen and refine this theory.

CONSTRUCTIVIST TEACHING AND LEARNING

One example of constructivist teaching and learning is taken from Bill Peterson’s fifth grade class and their study of the American Revolution and the creation of the U.S. Constitution. Unlike the traditional way in which this topic has been taught through sterile lectures, boring textbook readings, and rote memorization of factoids, Peterson decided to have the students in his class reenact, through role play, the Constitutional Convention of 1787. Only this particular convention included a twist in that they decided to invite many groups of people who were excluded from the original one in Philadelphia (e.g., indentured servants, African American slaves, White women, and Native Americans). As Peterson described this project: “The basic components of the role play are the dividing of the class into seven distinct social groups, having them focus on the key issues of slavery and suffrage, negotiate among themselves to get other groups to support their positions,

and then have debate and a final vote at a mock Constitutional Convention” (Peterson 2001, 63–64).

In preparation for the mock convention, Peterson poses several questions to his students, such as: Who benefited most and least from the American Revolution? Who benefited most and least from the Constitution? And, how have people struggled to expand the democratic spirit of the American Revolution after the Constitution was ratified? To help his students prepare for the role play activity, Peterson also shows them a picture of a painting depicting the original Constitutional Convention (which includes only wealthy White men), introduces them to some important vocabulary they will need to use, and gives them minilectures on each of the seven groups that have been invited to the convention. Once the students are divided into the groups, they begin to get ready for the convention, brainstorming a list of arguments they can use in their role play. Throughout the entire process of preparing for and conducting the mock convention, Peterson plays an active role in every step of the process by providing his students some background information on this event, informing them on the position of each group, and helping them construct their arguments for the role play.

Peterson’s (2001) experience of conducting this mock convention and role play for a number of years indicates that “it brings the above [sic] questions to life, energizes the class, and helps me assess my students’ knowledge and skills” (63). Through this exciting project, Peterson’s students learn firsthand that, historically, many oppressed groups of people were excluded from participating in the democratic process and how those groups fought to secure their freedom and equality. In this way, they gain a deep understanding of the background, content, and implications of this major historical event, unlike the cursory knowledge that comes from merely reading about it in a text book. Participating in the role play also enables Peterson’s students to hone their critical thinking skills and come to appreciate the value that dissent and resistance have in bringing about social change in a democratic society.

Another example of constructivist teaching and learning from a different context is taken from Rosemary Dusting’s teaching of 9th grade math. Following the same pedagogical method that she experienced when she was a student, Dusting initially taught math in the traditional exposition model in which the teacher is in complete control of the creation and dissemination of knowledge. Ignoring her own memories of how she struggled with math when she was a student and the boredom she often felt, Dusting preferred to stick to the only method she was familiar with: “I suppressed memories about how certain teachers made me feel idiotic if I ventured a response that was incorrect, or how others barely even noticed whether there were any students in the class, rarely leaving their chair or putting down the chalk as they ploughed on through sets of notes they’d been using for the past x years” (Loughran, Mitchell, and Mitchell, 2002, 174).

Over time, however, Dusting began to notice that the traditional way of teaching math was not effective for many students, whose interest and engagement were not aroused. Other students did not understand the concepts and, therefore, turned off instead of admitting that they were struggling with comprehension. Students in Dusting's class had very few opportunities to experience and practice math thinking skills. Ultimately, she concluded that her problems getting students to understand math stemmed from two factors: "the inherent weaknesses of the chalk and talk transmissive model; and the fact that it was the only style I was using" (Loughran et al., 176).

In the late 1990's, Dusting began to implement changes in her teaching of math by focusing on teaching for understanding and implementing many constructivist principles of learning into her lessons. For instance, instead of writing formulae on the board and demonstrating how to solve them, she sometimes asked students to try to study a new concept in the book on their own and then come up to the board and offer an explanation of this concept to the rest of the class. Moreover, when introducing a new topic, Dusting began to rely on brainstorming techniques, which required students to tap into their prior knowledge, helped them make connections to other topics, and got everyone involved in the lesson. On other occasions, after class discussions or other activities, Dusting asked them to write down their understanding of a math concept, identify the use of an algorithm, or write in their own words the steps used to solve a problem. Her experience with implementing these changes suggests that:

Once the students were familiar with the expectations of these approaches, they (generally) became quite accepting of the tasks. They quickly got down to the process which involved writing; they listened attentively as others read out their versions; and they checked and altered their own writing as a result of what they heard and now thought. (180)

Still, Dusting was unsure whether or not her new teaching approach, based on constructivist principles, was actually resulting in better quality learning for her students. She felt a need to find out more about her students' views on the way they were being taught and were asked to learn. Therefore, in 1999, Dusting decided to survey her entire 10th grade class, some of which were her 9th grade students the year before, as well as her current 9th grade students. The results of these surveys indicated that the students' views on Dusting's teaching approach were mixed. Some students appreciated the opportunity to work independently or in groups on solving math problems and think for themselves. Others acknowledged the chance to take responsibility for their own learning, but noted that they were often confused and did not receive adequate explanations of some concepts. Finally, there was a group of students who did not appreciate Dusting's constructivist

teaching approach and complained that they did not learn much because “she did not explain well and do her job properly.”

Based on her students’ survey responses, Dusting concluded that her constructivist teaching approach had not been successful for a significant number of her students, especially the ones who were not able to make the connections between the different concepts themselves: “I certainly recognize that, in teaching, it is not sufficient to ‘throw’ out some ideas, wait, then allow time for discussion and exploration if the overall big picture, the purpose underpinning the approach, is not made clear. It seems to me that I had not done this well enough for some of my students” (191).

Analyzing this experience, Dusting realized that, to reduce her students’ confusions and misunderstandings, she had to use her professional knowledge to respond to contextual factors and to step in and clarify questions as they arise. As a result of this insight, in 1999 Dusting decided to tone down her teaching approach and balance her desire for students to construct their own understandings of math concepts with the need to respond to students questions and provide them with good explanations. Not surprisingly, when she surveyed this new cohort of students about their experiences learning math, the vast majority of students had positive reactions to Dusting’s teaching approach. She, therefore, learned how important it is to not only attend to her own agenda as a teacher, but to be equally mindful of the students’ needs and experiences.

ANALYZING THESE EXAMPLES

What can one learn about constructivist theory from these two examples of successful constructivist teaching and learning? The first lesson is the notion that genuine learning requires students to be active, not passive, and to construct their own interpretations of the subject matter. For both Peterson and Dusting, it is clear that learning is about understanding and applying concepts, constructing meaning, and thinking about ideas; learning is not about accumulating random information, memorizing it, and then repeating it on some exam. As Freire ([1970] 1994) argued, learning requires the learner to be active, and knowledge arises out of a shared process of inquiry, interpretation, and creation. Moreover, the two cases of successful constructivist teaching presented above that constructivism is not the same as child-centered teaching approaches. The latter is indebted to theorists like Rousseau, who asserted that the educator should intervene as little as possible with the “natural” development of children. Yet, the examples of Peterson and Dusting illustrate that a good constructivist classroom is one in which there is a balance between teacher- and student-directed learning, and one that requires teachers to take an active role in the learning process, including formal teaching. Maughn

Rollins Gregory (2002) echoes this point when she writes that

Since an autonomous community of uninitiated students may construct understandings and values at odds with disciplinary standards, and verify those understandings to themselves with utter conviction, there must always be an ineradicable element of authority in the practice of even constructivist pedagogy. Although the constructivist account of learning includes making new knowledge intelligible to oneself and verifying it to oneself in practice, the intelligibility of an idea to myself, as Peirce argued against Descartes, is no epistemological warrant of its truth. (400)

Hence, the authority of knowledge in constructivist classrooms still rests heavily on the teachers' own knowledge and experience. Dewey ([1902] 1956, 18–19), who was one of the pioneers of modern constructivism, clearly understood this point when he claimed that it is the “adult knowledge,” not children's own insights, which can guide students to valuable new experiences that will lead to growth. Dewey also wisely insisted in numerous writings that, in education, extremes are dangerous and that teachers should avoid approaches that either marginalize the needs, experiences, and interests of children or focus entirely on these factors. Other constructivists like Freire ([1970] 1994) and Kincheloe (1999) have stated quite bluntly that educators who have nothing to teach their students should look for a different profession.⁴

In addition, the examples presented previously illustrate the fact that knowledge construction can neither be understood as solely an individual cognitive process (radical constructivism) nor as fundamentally a social process (symbolic interactionism). Thayer-Bacon's (1999) concept of *constructive thinking* may be helpful here in reminding individuals that thinking is both something they construct within themselves and is also socially constructed. By focusing either on the individual act of construction or on the socially determined nature of knowledge, many constructivist theorists miss something fundamental about classroom learning. They miss what is evident in both Peterson's and Dusting's classrooms: the fact that knowledge construction involves an integration of individual cognitive processes and social processes. Indeed, in these classrooms, students learned through a combination of individual reflection and various interactions between the teacher and the students and among the students themselves. That is, in good constructivist classrooms, students learn in a variety of ways, which include trying to solve problems on their own, sharing their ideas with their peers, and asking the teacher to explain issues and concepts that are unclear. As Martin Simon (1995) writes, “understanding learning as a process of individual *and* social construction gives teachers a conceptual framework with which to understand the learning of their students” (117, emphasis added).

Finally, there is the notion that good constructivist teaching ought to be flexible and attend, first and foremost, to the actual needs of students, and not just to the

teacher's perceptions of those needs. Much like Rosemary Dusting, who adjusted her teaching approach when she realized that it was not working well for some of her students, constructivist educators are successful to the extent that they constantly monitor how their students are responding to their pedagogical approaches and how well they are actually learning. Leslie Steffe and Beatriz D'Ambrosio (1995) echo this point in the context of the teaching of mathematics:

How does the teacher try to activate schemes she conjectures that the students have? How does the teacher interpret students' actions? How does the teacher modify a task that fails to activate certain schemes? These are but a few questions that point to an important aspect of constructivist teaching—the ability of teachers to test their hypotheses about the nature of the mathematical knowledge of their students and the ability of the teachers to neutralize the perturbations that emerge in testing their hypotheses. Perturbations are neutralized as teachers refine and modify their hypotheses while interpreting the mathematics of their students. (155)

Thus, as Steffe and D'Ambrosio (1995) assert, constructivist teaching requires teachers to be able to interpret their students' actions and responses, test their interpretations of their students' knowledge, and make modifications when they discover that students have not grasped what they were supposed to. As such, it is much more demanding than traditional models of pedagogy in which the teacher was required to merely know the content and be able to disseminate it to the students. In the following section, I begin to lay out a pragmatic constructivist discourse that is informed by the insights of good constructivist teaching previously outlined.

PRAGMATIC CONSTRUCTIVISM

At the risk of complicating the literature on constructivism even further, I now propose a pragmatic discourse of constructivism, one that synthesizes the ideas of some constructivist thinkers usually kept apart and that is based on good teaching practice. Following Dewey (1988), I am using the term *pragmatic* to refer to a way of knowing that comes out of purposefully changing the environment and then reflecting on this change. Dewey's pragmatist approach was intended as a critique of the traditional notion that action is inherently inferior to theoretical knowledge. Yet he also insisted that to advocate the other extreme and privilege practice over theory is equally problematic. Indeed, Dewey (1988) maintained that a pragmatist approach does not imply "that action is higher and better than knowledge, and practice inherently superior to thought" (30). In his view, genuine knowledge comes neither by thinking about something abstractly nor by acting uncritically, but rather by integrating thinking and doing, by getting the mind to reflect on the act.

To understand Dewey's pragmatic constructivism, it is helpful to view it as a response to what he calls the "spectator view of knowledge." According to the spectator theory, people obtain knowledge similar to the way in which spectators learn about a sports event: by watching the game. This type of learning is passive, because the spectator merely watches the game and does not affect its outcome. However, as Phillips (1995) points out, the constructivist view of Dewey asserted that the knower is an organic part of the situation that is being investigated. In this case, the person learning a particular sport "would be playing in the game; he or she would be affecting the game and, in the process, obtaining knowledge about it—the knower would be learning by participating or acting" (Phillips 1995, 9). In Dewey's view, through participating in an activity, individuals not only become more proficient in doing it but also construct a deeper understanding of the rules, methods, and goals of this activity. The examples of Peterson and Dusting, who got their students to be actively involved in the learning process and create their own interpretations of the topic they studied, definitely confirm Dewey's perspective.

Thus, a pragmatic constructivist discourse is one that is grounded in doing, that is, in good constructivist teaching practice. Such a discourse must be informed by the lessons that can be learned from the experiences of good constructivist teachers. Dewey (1966) summarizes this pragmatic perspective well when he notes that, if modern experimental science has taught anything, it is that

there is no such thing as genuine knowledge and fruitful understanding except as the offspring of *doing*. The analysis and arrangement of facts which is indispensable to the growth of knowledge and power of explanation and right classification cannot be obtained purely mentally—just inside the head. Men have to *do* something to the things when they wish to find out something; they have to alter conditions. (275)

Aside from Dewey, the pragmatic constructivism that I am proposing is informed by the insights of Piaget, Vygotsky, and Freire, and it will become evident shortly how each of these theorists has contributed to this discourse. A pragmatic constructivist discourse is intended to be more than just a set of abstract ideas about knowledge and learning; it is also designed to be more than simply a challenge to traditional notions of learning. What I have in mind is a discourse that is both descriptive and prescriptive, one that can offer some concrete guidance and recommendations for educators.

On the surface, it may seem strange to claim that Piaget's ideas have influenced the pragmatic constructivism presented here, because Piaget is often associated with subject-centered constructivism, which holds that individuals construct their own understandings with little or no outside influence. However, a close reading of Piaget's writings suggests that he does acknowledge the influence of the social context, such as language and cultural norms, on individuals. Further, Piaget's endeavor to create a unique discipline, genetic epistemology, integrating insights

from biology, psychology, and philosophy is, among other things, an attempt to synthesize experimentation and thinking, reflection and action. Whether he was observing his own children or devising an experiment to test out his hypotheses about cognitive development, Piaget's methodology involved reflecting on the actions and thought processes of human beings. His mode of investigation is, therefore, consistent with the pragmatist principal of integrating experimentation (action) with conceptual analysis.

Moreover, Piaget believed that to understand the nature of knowledge, "we must study its formation rather than examining only the end product" (Kamii and Ewing, 1996, 260). His developmental theory demonstrates that the way one arrives at knowledge is equally, if not more, important than the final result. For instance, when comparing concrete operations to formal operations, Piaget (1972, 2) describes two very different kinds of reasoning processes:

From 7–8 years, the child is capable of certain logical reasoning processes but only to the extent of applying particular operations to concrete objects or events in the immediate present: in other words, the operatory form of the reasoning process, at this level, is still subordinated to the concrete content that makes up the real world. In contrast, hypothetical reasoning implies the subordination of the real to the realm of the possible, and consequently the linking of all possibilities to one another by necessary implications that encompass the real, but at the same time go beyond it.

To be sure, Piaget's theory of cognitive development, as well as the epistemological and ontological assumptions on which it is based, have received a great deal of well-deserved criticism (e.g., Gardner, 1983; Kincheloe, 1999). But the point that is relevant in this context is that his emphasis on the need to attend to the particular cognitive processes of children in different ages and developmental stages has greatly influenced the way in which teachers plan for, and deliver, instruction. Constructivist teaching, in particular, has adopted Piaget's notion of knowledge as a process of inquiry and reasoning. Like Rosemary Dusting, who asked her high school math students to define a math concept or explain how they solved a problem, many constructivist teachers incorporate activities into their lessons that require students to demonstrate critical thinking skills and reflect on their own reasoning. The underlying goal in such lessons is not to feed students a list of essential facts or formula, but rather to help them construct a deeper understanding of an issue that is significant to them. Vygotsky's contribution to the pragmatic constructivist discourse I envision is primarily in his concept of the *Zone of Proximal Development*. Vygotsky (1978) defines the Zone as "the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem

solving under adult guidance or in collaboration with more capable peers” (86). Such a conception of cognitive development went against the conventional wisdom of the time, which assumed that what children can do by themselves is the only accurate indication of their mental developmental level. In contrast, Vygotsky’s original insight is that what children can do with the assistance of others not only needs to be taken into account when one considers their performance, but may be even more indicative of their mental development than what they can do on their own.

Vygotsky’s (1978) concept of the Zone enables one to realize that human learning, mental development, and knowledge are all embedded in a particular social and cultural context in which people exist and grow. “Since mental activity, he maintained, takes place in a social and cultural context, thought will operate differently in diverse historical situations. Cognition thus is shaped by the interactions among social actors, the contexts in which they act, and the form their activities assume” (Kincheloe, 1999, 9). Recognizing that this social and cultural context has a huge impact on children’s learning helps one understand that mental ability is not something innate or fixed. Rather, cognition is more like a skill or a capacity that can be learned with the help of others.

Much like Piaget’s ideas, Vygotsky’s writings have been subjected to a number of critiques, as his major concepts have become more recognized in the West (Wertsch and Tulviste, 1992). Still, the issue here is that some of the implications of the concept of the Zone have had a significant impact on current teaching practices in schools. Specifically, Vygotsky’s insight that teachers need to consider students’ level of potential development when we assess their cognitive maturity has inspired the organization of instruction in constructivist classrooms. For instance, the increased reliance on cooperative learning practices in such classrooms is indebted to Vygotsky’s insistence that teachers take into account what students can do with the help of more capable peers (i.e., their potential level). Remember also that the concept of the Zone is based on Vygotsky’s assumption that mental functioning occurs initially on the social plane and only afterward within the child, on the psychological plane (Wertsch and Tulviste 1992, 549). It is noteworthy that the advocates of cooperative learning have appropriated this assumption as one of the major epistemological foundations upon which they justify their support of this practice.⁵

Vygotsky also insisted that teaching should be tied more closely to the level of potential development than to the level of actual development. In his words, “the only ‘good learning’ is that which is in advance of development” (Vygotsky, 1978, 89). This insight—that good teaching should always help students advance to the next level of development—has been incorporated by many constructivist teachers. Like Bob Peterson, who got his group of fifth graders (who are probably still primarily concrete thinkers) to reenact the Constitutional Convention of 1787 by researching this event from multiple perspectives and by

constructing convincing arguments to support their position, constructivist teachers typically challenge their students to go beyond their existing developmental level.

Aside from Dewey, Piaget, and Vygotsky, the pragmatic constructivism proposed here is indebted to Paulo Freire's (1994) notion of "problem-posing education"⁶ For Freire, problem-posing education, as opposed to the "banking concept of education" does not consist in the transferals of information but in developing the consciousness or critical thinking skills of the students. Unlike banking education, problem-posing education is based on dialogue, which means that the teacher is no longer the only one who teaches, but one who also learns through the dialogue with the students. Similarly, in this model the students take on the responsibility not only to learn but to become co-teachers in the learning process: "Through dialogue, the teacher-of-the-students and the students-of-the-teacher cease to exist and a new term emerges: teacher-student with students-teachers. The teacher is no longer merely the-one-who-teaches, but one who is himself taught in dialogue with the students, who in turn while being taught also teach" (Freire, [1970] 1994, 61).

In problem-posing education, knowledge is not a gift, possession, or a thing that some individuals have and others lack. Rather, Freire ([1970] 1994) argues that knowledge is attained when people come together to exchange ideas, articulate their problems from their own perspectives, and construct meanings that make sense to them. It is a *process* of inquiry and creation, an active and restless process that human beings undertake to make sense of themselves, the world, and the relationship between the two. Freire's notion of knowledge as a process of inquiry and creation has had a significant impact on constructivist teaching and learning practices. Indeed, both Peterson and Dusing integrated learning activities into their lessons that were based on a conception of knowledge as a shared process of inquiry and meaning making.

Moreover, informed by Freire's ([1970] 1994) notion of problem-posing education, I, like many teacher educators, focus my classes on conducting dialogues with my students rather than lecturing to them. These dialogues include activities such as class-based discussions, conversations in small groups, and student-presentations. Consistent with Freire's approach, such discussions and conversations typically focus on current educational problems, like standardized testing, which affect teacher-candidates directly but are also related to more general educational and social issues. The premise underlying all these activities is the constructivist notion (indebted to Freire and other theorists) that genuine knowledge comes when students are actively engaged in the learning process. Inspired by Freire, the main goal of many constructivist teacher education classes is to encourage teacher-candidates to become more critically aware of fundamental educational problems so that they will be better equipped to become change agents and not just adapt to the status quo.

CONCLUSION

This discussion is intended to initiate a conversation about what a pragmatic discourse of constructivism might look like. As such, it is provisional and partial, rather than conclusive or definitive. Throughout this article, I have argued that educators need a pragmatic discourse of constructivism, one that is not simply a set of abstract ideas about knowledge and human existence, but is informed by the lessons that can be learned from good constructivist teaching. A pragmatic constructivism is more than just a critique of traditional models of teaching and learning; it is an educational discourse that offers some concrete guidance and advice for teachers. Although a pragmatic constructivism may not shed much light on educational reform in an age of accountability, it does offer educators some insightful answers to questions such as: What does it mean to demonstrate genuine understanding of the subject matter? How do teachers manage a classroom in which students are talking to one another rather than just to the teacher? What types of skills do teachers need to become good facilitators of learning? And what type of assessments will evaluate the deep learning for understanding that we wish to foster? Constructivist theorists and educators like Dewey, Sizer, and Windschitl have provided some promising responses to these questions. Sizer (1996), for instance, has argued that genuine understanding has to do with the ability to demonstrate critical and analytical habits of mind and that performance-based assessments are a much better way of evaluating these skills than standardized tests. And Windschitl (2002, 145) has shown that teachers who are good facilitators are able to elicit ideas from their students and mediate classroom conversations through careful questioning strategies so that their students develop more sophisticated understandings.

Yet, why is it so important to add a pragmatic constructivist discourse to the multiple versions of constructivism already in place? And what does a pragmatic constructivism offer that some of the other constructivist discourses do not? Educators need a pragmatic discourse of constructivism in large part because, as Davis and Sumara (2002) note, “most constructivist discourses were not originally conceived as *educational* discourses” (420), and, therefore, do not provide direct, practical recommendations for educators. Instead, these discourses were initially developed in other disciplines such as psychology, sociology, linguistics, and cultural studies, which do not have the same practical concerns and responsibilities as education. Thus, a pragmatic constructivist discourse is important because it involves a shift in perspective away from the theoretical disciplines previously mentioned to the more practical field of education. Indeed, the pragmatic discourse that I have in mind attempts to define and evaluate constructivism from the vantage point of good constructivist teaching and learning, as well as the insights of a number of constructivist theorists who have had the most impact on transforming educational practice. As opposed to other constructivist discourses,

pragmatic constructivism is not primarily a theoretical account of human knowing and being, which is then transplanted uncritically into the field of education. It is, rather, a practical discourse that takes seriously the lessons that can be learned about this theory from the experience of excellent constructivist teachers.

Unlike Davis and Sumara's (2002) approach, which looks at discourses outside the field of education (like psychoanalysis, poststructuralism, and complexity science) as models for how to adapt insights and vocabularies from other domains to education, the pragmatic constructivism proposed here looks inward, to educational practice, to shed light on constructivist theory. The problem that I have with the approach of Davis and Sumara, is that although they seem to be concerned with making constructivist principles more relevant for education, they still consider the relationship between the various theoretical discourses they examine and education as a one-way street. They assume, in other words, that certain theories, like psychoanalysis, can impact educational practice but not vice versa. In this way, Davis and Sumara perpetuate the traditional hierarchy between educational theory and the practice of teaching, which associates the former with knowledge production and regards the latter as mere doing or following.

In contrast, the pragmatic constructivism proposed here insists that there should be a mutual interaction between educational theory and practice—that each can inform and be influenced by the other. Specifically, pragmatic constructivism asserts that constructivist theory has a great deal to learn from the insights and experiences of good constructivist teachers. For instance, the two cases of constructivist teaching analyzed in this article illustrate that the authority of knowledge in constructivist classrooms still rests primarily on the teacher's own knowledge and experience. The examples of Peterson and Disting also show that the dispute between radical and social constructivists on how knowledge is constructed is misleading, because knowledge construction involves both individual cognitive and social processes. These insights are important because they can help refute the misguided notion that constructivism is a kind of relativist discourse lacking any clear and coherent tenets.

Although the pragmatic constructivist discourse presented here attempts to synthesize various ideas from Dewey, Piaget, Vygotsky, and Freire, I do not imply that there are no differences among this particular group of constructivist theorists. Clearly, there are important distinctions between the subject-centered constructivism of Piaget and the social constructivism of Vygotsky, such as in the extent in which knowledge is socially constructed. Likewise, Freire's critical approach to education diverges from Dewey's progressivism on some key points. For instance, Freire would probably be much harsher than Dewey in his appraisal of the legitimacy and credibility of the current educational system in the United States. Still, my basic argument is simply that these four theorists share a conception of constructivism that is essentially pragmatic, one that is deeply concerned with changing current educational practice to foster active learning and genuine

understanding. Informed by the insights of Dewey, Piaget, Vygotsky, and Freire, the pragmatic constructivism developed here is different from other constructivist discourses in that it speaks directly to the practical concerns of teachers and other educators in schools.

NOTES

1. Of course, constructivist ideas have existed for a long time, perhaps since the ancient Greeks. Yet a formal discourse that uses the term *constructivism*, presents the characteristics, and argues for the merits of this approach is a relatively new phenomenon. In this context, it is noteworthy that neither Piaget nor Vygotsky, who are considered constructivists, used this term in their writings.
2. Some of these constructivist theorists are discussed in Brent Davis and Dennis Sumara's (2002) essay "Constructivist Discourses and the Field of Education: Problems and Possibilities;" others are analyzed in Rebecca Oxford's (1997) "Constructivism: Shape-Shifting, Substance, and Teacher Education Applications."
3. Dewey considered the content knowledge or "scholarship" that teachers possess as not merely theoretical, remote from the practical issues that teachers face. He believed that teachers' practical knowledge can serve as a tremendous resource for enhancing educational theory. See his essay "The Relation of Theory to Practice in Education," in *John Dewey on Education: Selected Writings* ([1904] 1974).
4. This statement was made by Joe Kincheloe in a private conversation with the author in 1999.
5. For a discussion of Vygotsky's influence on cooperative learning, see Kenneth A. Brufee's *Collaborative Learning: Higher Education, Independence, and the Authority of Knowledge*, (Baltimore: John Hopkins University Press, 1993), 144.
6. I am aware that both Freire's and Dewey's constructivist theories have recently come under attack by Chet Bowers (2005) for failing to appreciate "the complex ways in which culture influences values, ways of thinking, behaviors, built environments, and human/nature relationships" (IX). However, my basic point here is not to defend the value of Freire's and Dewey's individual theories of learning, but rather to begin to develop a pragmatic constructivist discourse based on their theories. My argument does not, in any way, diminish from Bowers' powerful critique of some of the major limitations of Freire's and Dewey's constructivist views in particular, and constructivist theories of learning in general. See his book *The False Promises of Constructivist Theories of Learning* (2005).

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