Constructivist Pedagogy

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This article constitutes a critique from the inside of constructivist pedagogy. It begins with a short history of constructivist pedagogy and its relationship to constructivist learning theory. It then addresses four issues in the ways in which constructivist pedagogy are being approached in research and practice. The first issue recommends more of a research focus on student learning in classrooms that engage in constructivist pedagogy. The second leads to the suggestion of theory development that provides an understanding and descriptions of more and less effective constructivist teaching. The third centers on the necessarily deep subject matter knowledge required of teachers who adopt constructivist pedagogy; and the difficulty this requirement imposes on elementary teachers who must deal with many subject matter areas. And the fourth issue raises the possibility that the vision of constructivist pedagogy, as presently recommended, if not mandated, locally and nationally, is strongly ideological and may impose, inappropriately, a dominant view of pedagogy on those who wish to operate differently.

Constructivism as a learning theory goes back a number of decades (see Phillips, 2000). Constructivist teaching as a theory or practice, however, has only received attention for approximately one decade.[1] Current interest and writing in constructivist teaching leave many issues unresolved. These issues relate, in part, to the difficulty in translating a theory of learning into a theory or practice of teaching, a conversion that has always been difficult and less than satisfactory. However, the nature of constructivism as an individual or group meaning-making process renders this conversion remarkably demanding. But there are additional aspects of constructivist pedagogy, some that are relatively pragmatic, such as those related to our expectations for teacher knowledge, that have lead to issues that are as yet unexamined or certainly not solved. This article provides a description of the short history of constructivist teaching and teacher education, and describes and analyzes some of these issues.

CONSTRUCTIVIST THEORY

The general sense of constructivism is that it is a theory of learning or meaning making, that individuals create their own new understandings on

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the basis of an interaction between what they already know and believe and ideas and knowledge with which they come into contact (Resnick, 1989). Thompson (2000), however, suggests that constructivism is not a theory of learning but a model of knowing, and constructivism may be used to build a theory of learning. Nonetheless, the view of constructivism as a learning theory has guided most of the development of constructivist pedagogy.

More recently, Phillips (2000) edited an NSSE Yearbook, *Constructivism in Education*, with many chapters that take the reader back into philosophical and social theory literature that was not, at the time it was written, called constructivism but certainly contained foundational elements in considerable agreement with what is meant by constructivist learning theory today. The chapter authors identified and explicated elements of what they consider to be the basic foundations of the construct. In so doing, however, they represented constructivism as a construct and movement that has become massively complex, with different founders and advocates, schools, focii, and disciplinary approaches. For example, Matthews (2000) identified 18 different forms of educational constructivism that are named and described in the literature, including methodological, radical, didactic, and dialectical. This volume indicates that there are many unanswered questions in the constructivist theory literature such as those related to knowledge, how it is created, what is social, and how subject matter affects the way we are constructivist in practice.

There is a modicum of agreement, however, around a differentiation between two forms of constructivism. Phillips (2000) describes these as radically different poles that serve to delineate the whole domain of constructivism. Not all agree, however, that we are dealing with two completely separate and competing approaches. In fact, the two forms are beginning to come together with a focus on the social aspects of classrooms.[2] However, there is a difference in the lenses used to view constructivism—the first being sociological, the second psychological. And it is these lenses that Philips focuses on:

> 1. *Social constructionism* or *social constructivism*. A theory that bodies of knowledge or disciplines that have been built up are "human constructs, and that the form that knowledge has taken in these fields has been determined by such things as politics, ideologies, values, the exertion of power and the preservation of status, religious beliefs, and economic self-interest" (Phillips, 2000, p. 6). This approach centers on the ways in which power, the economy, political and social factors affect the ways in which groups of people form understandings and formal knowledge about their world. These bodies of knowledge are not considered to be objective representations of the external world.

2. *Psychological constructivism*. This approach relates to a developmental or learning theory that suggests that individual learners actively construct the meaning around phenomena, and that these constructions are idiosyncratic, depending in part on the learner's background knowledge. The development of meaning may take place within a social group that affords its individual members the opportunity to share and provide warrant for these meanings. If the individuals within the group come to an agreement about the nature and warrant of a description of a phenomenon or its relationship to others, these meanings become formal knowledge.

The major difference between the social and psychological approaches is one of focus. In both approaches, there is an assumption that meaning or knowledge is actively constructed in the human mind. However social constructivism focuses on how the development of that formal knowledge has been created or determined within power, economic, social and political forces. This includes both its structure and the epistemological frameworks in which it is embedded. The psychological approach focuses on the ways in which meaning is created within the individual mind and, more recently, how shared meaning is developed within a group process.

The development of a social focus within psychological constructivism has been an important contribution within this form, particularly for pedagogical processes. It acknowledges the social nature of formal knowledge development within an expert community, and of knowledge creation that can take place within a social grouping such as a classroom. It is important to realize, however, that the social aspect of psychological constructivism is not equivalent in focus, conception, or analytic level to social constructivism. The social aspects of psychological constructivism add the individual contributions that are then negotiated among the group. It represents a process, in the best of all possible worlds, that is dialogical and rational, and that creates a shared and warranted set of understandings. While language and culture play important roles in this process, the critical theory issues of status, ideology, politics, and power are usually not considered in the psychological approach to constructivism such as they are in social constructivism.

Most of the work on constructivist pedagogy takes place within the second approach—psychological. There are exceptions, but they are rare.[3]

CURRENT INTEREST IN THE CONSTRUCTIVIST PEDAGOGY

Current interest in what it means to teach in a constructivist manner was sparked by authors such as Atwell (1987) and Fosnot (1989) in the reading/language arts area. This focus required a significant shift from considerations of how individual students learn to ways of facilitating that learning,

first in individual students and then in groups of students found in classrooms. It was also at this point that a number of programs of learning standards based on constructivist principles in various subject matter areas were launched at the national level (e.g., National Council of Teachers of Mathematics, 1989). These were often followed closely by materials that suggested approaches to teaching to these standards (e.g., National Council of Teachers of Mathematics, 1991).

The 1990s psychological research on constructivist pedagogy began to uncover the detailed nuances of teacher actions in classrooms identified as constructivist by the researchers. Much of this work was conducted within specific subject matter areas. For example, in the mathematics classroom, there was Cobb et al. (1991) and Wood, Nelson, and Warfield (2001). The teaching of writing was presented by Freedman (1994); history by Wilson and Wineburg (1993) and summarized by Wilson (2001); reading, summarized by Barr (2001); and science by Tobin (1993) and summarized by White (2001). Many of these authors made comparisons of constructivist with transmission model teachers to explicate differences in the two teaching approaches.

The constructivist pedagogy presented in these and other representations of the process involve the following characteristics:

1. attention to the individual and respect for students' background and developing understandings of and beliefs about elements of the domain (this could also be described as student-centered);

2. facilitation of group dialogue that explores an element of the domain with the purpose of leading to the creation and shared understanding of a topic;

3. planned and often unplanned introduction of formal domain knowledge into the conversation through direct instruction, reference to text, exploration of a Web site, or some other means.[4]

4. provision of opportunities for students to determine, challenge, change or add to existing beliefs and understandings through engagement in tasks that are structured for this purpose; and

5. development of students' metawareness of their own understandings and learning processes.

These elements of constructivist pedagogy, however, are not specific practices. They are, if you will, imperatives, approaches to teaching toward which one initially aspires and which then become fundamental aspects of the teacher's praxis. These elements play out quite differently depending on content domain, age level of the students, students' experiences as learners prior to coming into the specific classroom, school context, teaching

style, and so on. In this article, then, constructivist pedagogy is thought of as the creation of classroom environments, activities, and methods that are grounded in a constructivist theory of learning, with goals that focus on individual students developing deep understandings in the subject matter of interest and habits of mind that aid in future learning.[5] To date, the five elements listed previously appear to contribute to the creation of such a classroom.

As interest built in constructivist standards teaching, the field of teacher education also began to explore the meaning and practice of constructivist teacher education. Francine Peterman convened symposia three years in a row at AERA on constructivist teacher education (see Peterman, 1991, 1992; Peterman & Comeaux, 1993) that explored research, issues, policies and practices. There were disputations at all three of these sessions as researchers considered what it means to prepare teachers to teach constructively. Initially, the work focused primarily on preparing teachers to teach in a constructivist manner in the classroom. Constructivist learning theory became an important element of the curriculum, and it was often presented to the students in a lecture format. Models of teaching constructively were presented to the teacher education students to guide them in establishing constructivist classrooms.

The major controversy at that point focused on the process of directly instructing teacher education students to use explicit step-by-step models of constructivist teaching. The method of teaching constructivism contradicted the learning paradigm inherent within the various models that the teacher education students were being asked to learn to implement. Thus, it became clear quite quickly that the teacher education classes, themselves, should probably be conducted in a constructivist manner for ethical reasons, to increase the legitimacy of the theory among the teacher education students, and to help students develop deep understandings of the teaching process and habits of mind that would aid in their continuing learning.

The typical teacher education classroom began to move from a lecture format to one in which the teacher educator acts as a facilitator in the development of individual and group meaning around classroom teaching. Two related aspects of constructivist teacher education became 1) a goal of leading students toward teaching constructively in their own classrooms and 2) using constructivist approaches in teacher education instruction. The five elements described above for constructivist pedagogy also characterize the sense of constructivist teacher education (Richardson, 1997).

UNRESOLVED ISSUES

What should concern us as we contemplate constructivist teaching and teacher education and research on these topics? There are several issues

that require considerable attention if our understanding of constructivist pedagogy is to develop further.

Student Learning

Looming over all of the concerns, dilemmas, and critiques of constructivist pedagogy is the realization that constructivism as a learning, development or meaning-making theory suggests that students also make meaning from activities encountered in a transmission model of teaching such as lectures or direct instruction, or even from non-interactive media such as television. And, as mentioned previously, direct instruction and lectures may still be a part of a constructivist classroom. What, then, does constructivist teaching do for students that is different from their learning within a traditional transmission model? I always thought that a constructivist classroom provides students with opportunities to develop deep understandings of the material, internalize it, understand the nature of knowledge development, and develop complex cognitive maps that connect together bodies of knowledge and understandings. However, to accept that this is the case and to understand more about student learning within a constructivist classroom, we need to conduct more empirical inquiries on the topic.

Much of constructivist pedagogy focuses on a specific domain or discipline with a goal of developing in students the ability to think mathematically, historically, literarily, scientifically, musically, and so on. Thus, the empirical work that examines student learning is probably best conducted within a specific disciplinary or subject matter domain. An example of such an inquiry is found in the chapter by Ball and Bass (2000) in the NSSE Yearbook. The authors have been working with two templates: one is brought forward from the domain of mathematics—the ways mathematical knowledge is constructed through reasoning and developing proofs, or, as the authors describe, "the challenge of proving that something is true when all cases cannot be checked." (p. 197). The teaching template includes three commitments: to treat the discipline of mathematics with integrity; to give serious respect to children's mathematical ideas; and to see mathematics as a collective intellectual endeavor located within a community. By bringing these two templates together, the authors are able to describe how students' mathematical reasoning is facilitated within a constructivist classroom, with examples from an empirical study of this process. This is an explicit and extremely useful account of the skills in mathematical reasoning and mathematical proofs that students develop in a classroom that exemplifies a constructivist approach. More such work can only redound to the benefit of the constructivist concept, as well as providing useful information for practice.

It is important to note that an empirical focus on relationship between teaching and student learning does not necessarily require an experimental study that compares constructivist and traditional instruction. Such an experimental design might be helpful for policy purposes, but agreement on the outcomes of instruction would be difficult to achieve, since the goals of the two approaches are quite different. Certainly, since many students these days are taking state-level standardized tests, one would hope that constructivist instruction would yield decent scores on the measures. However, the type of deep understanding of mathematical reasoning and proof described in the Ball and Bass (2000) article is not what is being assessed on these state-level or national standardized tests. The inquiry approach taken by these researchers and others in examining student learning makes transparent the purposes of the constructivist instruction as well as what the students are learning from it.

Effective Constructivist Teaching

A second issue that confronts us in constructivist teaching is that because constructivism is a theory of learning and not a theory of teaching, the elements of effective constructivist teaching are not known. For example, the three pedagogical "commitments" described by Ball and Bass (2000) are not meant to be practices. As these commitments are transformed into practices, is there anything that we can say about more or less effective practices? Is it possible to move beyond the individual teacher, context and group of students to be suggestive of practices that are instructive to others? In an analysis of the nature of quality in teaching, Fenstermacher and I examined the sense of successful and good teaching within a number of pedagogical paradigms (Fenstermacher & Richardson, 2000). We found that within the constructivist paradigm, good teaching is constructivist teaching. That is, what is presented in the literature are examples of exemplary constructivist teaching, often compared with transmission teaching. Examples of ineffective constructivist teaching are seldom presented. If a teacher considers herself to be constructivist (or one who teaches for understanding), but is not particularly good, it is suggested that this is probably because the teacher, at root, holds transmission beliefs (Cohen, 1990).

This lack of a sense of effective constructivist teaching is due, in part, to the lack of constructivist teaching theory. For some time, prescriptions of constructivist teaching focused on admonitions such as "no phonics teaching," "no basal readers," "no direct instruction," and "no telling." Thus constructivist teaching theory consisted of a foundation of constructivist learning theory and a set of prescriptions about what actions should not

be adopted from the transmission model. Without a clear sense of constructivist teaching, we are liable to find some amazing things going on in classrooms under the label of constructivism, such as we have within the whole language movement. Whole language teaching relies on the teacher's commitment to whole language as a language development theory, certain skills of determining where individual children are in their development (miscue analysis), and establishing a classroom context in which children and authentic language come together in many different ways (K. Goodman, 1996; Y. Goodman, 1996). While the first and third requirements provide partial guidance for instruction, learning theory dominated the presentation of teaching. Without a theory of whole language teaching that is communicated to teachers who are learning language instruction, many who like the concept but perhaps know little about its instruction, call their approach to language teaching "whole language". This instruction ranges from laissez-faire nonteaching to typical homogenous reading groups using authentic literature texts rather than basal readers. This situation has created considerable concern in the policy arena, particularly the laissez-faire approach, and has led, in some cases, to attempts to replace all such language instruction with back-to-basics approaches.

Examples of the effects of a lack of constructivist teaching theory on the results of teacher education have been provided in other subject matter areas as well. For example, MacKinnon and Scarff-Seatter (1997) provide the following quote from an elementary science methods student

> I am very anxious to return to my classroom and teach science. Constructivism has taught me [that] I do not need to know any science in order to teach it. I will simply allow my students to figure things out for themselves, for I know there is no *right* answer. (p. 53)

Holt-Reynolds (2000) found a similar situation in which a prospective English teacher viewed constructivist pedagogies as ends in themselves, and lost sight of the content and purpose of the particular teaching activities.

Recently, a thoughtful and practice-based approach to development of teaching theory has emerged that combines what Sfard (1998) calls the acquisition and the participation metaphors. These two metaphors may represent mutually exclusive theories of learning and are then often translated into teaching in an exclusionary way: That is, a particular pedagogical approach is either based on acquisition *or* participation. However, Sfard suggests that they can be brought together within a theory of teaching.

At this point, however, theories of teaching are being developed within subject-matter areas (see, e.g., Lampert, 2001).[6] In 1992, Shulman called for middle-level theory of teaching and learning, and this concept is

explicated further in Shulman and Quinlan (1996). Their approach called for theory building within individual subject matter domains. Such theory building would help to provide teachers and teacher educators with a sense of more and less effective approaches to constructivist teaching. However, as indicated in the next section, a focus on research and theory building within subject matter domains has led to some quite unrealistic expectations concerning teachers' subject matter knowledge.

Teachers' Subject-Matter Knowledge

Wineburg and Wilson (1991) suggest that the representation of a subject matter domain within a classroom is affected by the teacher's own understanding of the subject matter in combination with his or her understanding of how students are taking it up. Research within the last several years has indicated the importance of deep and strong subject matter knowledge in a constructivist classroom, be it K–12, teacher education, or professional development. This requires knowledge of the structure of a discipline as well as its epistemological framework. Such knowledge helps teachers in the interpretation of how students are understanding the material, in developing activities that support students in exploring concepts, hypotheses and beliefs, in guiding a discussion toward a shared understanding, providing guidance on sources for additional formal knowledge, and, at times, correcting misconceptions.

The depth of subject matter knowledge necessary to provide these experiences for students may be found in secondary teachers who major in a particular content, are teaching that content, and, by and large, see themselves as teachers of that content.[7] However, we have to question what the expectations concerning subject matter knowledge suggests for teachers at the elementary school level (see also Sosniak, 1999). Since the constructivist research is being carried on within individual subject matter—mathematics, science, history, or language arts—there seems to be little or no acknowledgment that other subject matters are also being taught. We are quite clear that constructivist teaching requires a deep understanding of the disciplines, of the ways in which students learn the content, and of the teaching practices specific to that discipline on the part of the teacher. However, is it a reasonable expectation, and if so, how will it be possible to insure that elementary teachers have the requisite level of knowledge in all the disciplines they are expected to teach?

One way of approaching this problem is to consider what transfer of understanding, habits of mind, and skills would mean in such a context. It is the case that research on the transfer across subject matter areas and contexts has been disappointing if not misguided (Detterman & Sternberg,

1993; Mayer & Wittrock, 1996); however, some of the more current calls for reconceptualizing the concept could prove useful (Beach, 1999; Bransford & Schwartz, 1999; Greeno, 1997). The question remains, however, whether we must consider all aspects of learning of subject matter strictly within each of the disciplines or subject matters? Or is there some possibility that there are skills, ways of thinking, habits of mind that may transfer across subject matter and that may be of interest and importance within the learning of different subject matters? If so, we may be able to develop a more realistic set of expectations for elementary teachers' subject matter understanding, and particularly if that understanding is organized within a set of frames that may be appropriate across subject matters and are susceptible to continued development on the part of the teachers and students.

An important approach to transfer was provided by Salomon and Perkins (1987) who distinguished between general and contextualized rules when considering this topic. They suggest that there are general skills that operate in contextual ways. In a more sociocultural frame, Dyson (1999) suggests that teachers help students reconceptualize their knowledge in "broader social, cultural, and ideological worlds" (p. 167). Focusing on the activities of teaching, Leinhardt (2001) provides an example of a teaching skill that may be useful in a general way across subject matter areas. In an examination of the role and skill of explanation in the teaching of mathematics and history, she identified a set of generic core goals for an instructional explanation, and then, using research on within-subject-matter instruction, analyzed the contextual differences within the two subjects. While her study indicates the depth of subject matter knowledge required to produce good explanations in two different subject matters, it also provides a general view of the phenomenon.

The preceding two sections suggested areas of inquiry and analysis that would help to improve our understanding of and practice in constructivist pedagogy. The next section may begin to question the very foundations of current thinking about a constructivist pedagogical theory that is based on constructivist learning theory.

Cultural Differences

This section is meant to be cautionary, not definitive, and places this discussion of constructivist pedagogy within a social constructivist frame—what Gergen (1994) calls the scholarship of dislodgment. It involves looking at constructivism, itself, as a concept that is constructed and practiced within our current cultural, political and economic constraints and ideologies. It connects with a small but powerful literature that expresses concerns about

the use of constructivist pedagogy with minority students, and questions whether this is an imposition of an inappropriate pedagogy on students who are not a part of the dominant culture (Eisenhart, Finkel, & Marion, 1996; Delpit, 1986, 1988; Lee, 1999). This section also describes some of my own dislodgment. I spent considerable time, recently, in Detroit schools, and saw little constructivist pedagogy of the psychological variety in these classrooms. I also spent time in Ann Arbor, Michigan, schools and found a considerable emphasis on constructivist pedagogy. There are a number of possible explanations for this phenomenon. Perhaps the teachers in the two settings experience very different teacher education. Perhaps the school board requirements are very different in the two cities. It could be that the board requirements in the urban area are responding to low test scores through a basic skills approach. The difference may also be attributed to differences in cultural beliefs about the nature of teaching and learning.

I believe it is much more than that: that psychological constructivism's roots are western, liberal, and individualistic (Eurocentric), and much of the current approach to constructivist pedagogy, at least in the United States, was developed within privileged classes. It is not clear to me that the less privileged and minority cultures are interested in the strong individualistic approach suggested in current constructivist pedagogical approaches to teaching given the perceived importance of community maintenance and development.

Let me draw this out further. I have had the opportunity to spend considerable time in two highly contrasting schools for the last three years (Chow-Hoy, 2001; Fenstermacher & Richardson, in press). One is an urban Afrocentric school of choice, the other is a somewhat diverse elementary school in a university city. The teaching approaches at the two schools were remarkably different. At the Afrocentric school, the teachers engaged in teacher-centered instruction[8], and the norms of the school focused on the development and improvement of the community both within and outside the school. Students were there to help form and improve that community. These community goals, expressed within the African-centered philosophy as Maat and Nguzu Saba were clear to all teachers, students and parents. Thus, the purposes of contributing one's very best to the community both inside and outside the school meant that values and expectations related to a communal world view were clear, and it was expected that students would obey them, and that teachers would foster them. By and large, teachers' interactions with students were public—in interviews, it was explained by the teachers that other students learn from a teacher's interaction with one student. Modeling the virtues of honesty, respect for others, and service for the good of the community, teachers were clear in their expectations for students to succeed in their academic subjects

so that they could do well in high school and beyond and come back to help the community.

The teaching in the university-area school was remarkably different. Teachers worked with individual students, often privately; and while the life skills goals that included such virtues as honesty and creativity were clearly set out for the students, there was an understanding on the part of the teachers that individual students would approach these goals differently, if not uniquely. While there was a strong sense of community, it was a community created by the students and teachers with the purpose of being of service to each individual student. There were a set of do's and don'ts related to the operation of the individual within the community. For example, within this school, the virtue of respecting others was a paramount moral goal. The community was there to help the individual students create a dialogical social group in order for students to develop a deep understanding of the material and to share the developed knowledge with other individuals in the class. However, the teachers believed that each student is unique, and will develop a unique set of understandings around the particular subject that is being explored. Among these teachers, this view also pertained to the development of moral values and moral infractions such as lying and bullying.

This particular approach to community represents one way in which psychological constructivism has gone social. The psychological constructivist approach may be particularly possible within a dominant culture; although there are still concerns about it within the conservative elements of the dominant culture. The community is created, then, for purposes of helping the individual learn, whereas in the Afrocentric school, the students were there to learn in a way that will help maintain and improve the community.

These differences in the culture of the two schools, particularly as they relate to the view of community and of the role of the individual within the community would certainly have an effect on the approach to instruction taken in the two schools. In fact, both schools presented excellent learning opportunities for their students. And yet they were very different, and one did not conform to the constructivist instructional approach advocated by many of the national standards documents.

I received a number of comments on this section of the paper from various sources. The description of the differences between the two schools, the conclusion that what was going on in the Afrocentric school was not constructivist pedagogy, and the judgment that both schools were providing excellent learning opportunities for their students, clearly causes discomfort. Many suggest that it was my own cultural and ethnic lens that led to the conclusion that what I viewed in the Afrocentric school was not constructivist pedagogy. This is certainly the case, but there is more to it

than that. The community that developed and defined the construct of constructivist pedagogy shares my cultural, ethnic and class lens. At this point, there is no other definition of constructivist pedagogy. This suggests that if the five elements described above are not observed in a classroom, the instruction cannot be described as constructivist pedagogy, whether or not one accepts constructivist learning theory as a valid and useful theory of learning for all students.

It has also been suggested that what was practiced in the Afrocentric school was a different form of constructivist pedagogy. However, the research team that I worked with discussed what we saw extensively with the teachers—both individually and as a group. The teachers in the Afrocentric school were quite clear about their approach being teacher-centered. There was a view of the world that they were trying to get across to the students and a set of clearly articulated aims for the students that included academic, community and life goals. This could only be described as constructivist pedagogy if the definition and subsequent development of pedagogical elements (such as the five listed above) were dramatically altered.

The most serious problem with the use of the constructivist pedagogy construct occurs when it becomes valued as best practice for everyone. The discussion of the differences in the two schools described above suggests that in our enthusiasm for constructivist pedagogy and our advocacy of this particular vision of instruction as represented in national and state standards, in our teacher education classes, professional development, and calls for reform, we may be imposing a dominant model of pedagogy on those who wish—and may have good reason—to operate differently.

CONCLUSIONS

We have moved, considerably, in a direction of developing an understanding of constructivist pedagogy based on constructivist learning theory. However, there are a number of aspects in our thinking about constructivist pedagogy that require strong and rigorous work, approached with constant attention paid to the possibility of ideological bias.

Perhaps the most critical area of work in constructivist pedagogy at this point is determining ways of relating teacher actions in a constructivist classroom to student learning. I am not suggesting that we go back to a behavioral process-product approach to determining the relationship between teacher behaviors and student outcomes on standardized tests. The term "action" includes both intentions and behaviors. Thus, the study of the relationship would include obtaining both a sense of the teacher's beliefs and values concerning broad and narrow learning goals for students,

as well as how these relate to the teacher's activities in the classroom. The second area of needed development in constructivist pedagogy is theory building. Theories of constructivist teaching will provide us with ways of identifying more and less effective teaching practices for use in teacher education and professional development. As mentioned previously, Shulman and Quinlan (1996) suggest that middle-level theories should be developed within subject-matter areas. However, the question then revolves around whether it would be possible to move from the theories of subject matter teaching to a more general theory that would account for subject matter, but not be dominated by it. It may be that theory building at both levels is required: at the subject-matter level as well as at a more general level. Such theory building should allow for an eclecticism and synthesis that would move away from individual "pure" theories of learning, but provide the type of learning experiences that are being called for under the labels of constructivism and teaching for understanding.

This theory building may provide ways of reconsidering the demands within constructivist pedagogy for deep and broad subject matter knowledge on the part of teachers, and particularly elementary teachers. By considering teaching at a more general level than individual subject matter, it may be possible to provide a useful frame for teachers whose subject matter in a particular area is not as strong as in another. This frame would also be useful for the teacher in his or her continuing development of subject matter knowledge.

And, finally, the cultural critique of constructivist pedagogy may take us beyond constructivist pedagogy. The teachers in the Afrocentric school were clear about their goals for their students and employed pedagogical techniques, strategies, and manner that conveyed their expectations to the students and helped them achieve the goals. One goal that the teachers in the Afrocentric school achieved particularly well with the students was also a goal for the teachers in the constructivist school; and that was assigning to individual students the responsibility for learning. This was seen by the teachers as a virtue that would not only take the students through school, but also through life. Examining the goals for students—both intellectual and moral—in very different cultural contexts, and inquiring into the different strategies that teachers use to achieve those goals may provide lessons and understandings for the development of a theory of teaching that encompasses constructivist learning principles but looks quite dissimilar in different cultural settings.

This critique suggests that we should remain semiskeptical about our sense of constructivist pedagogy, and resist considering it best practice and turning it into standards for educational practice. If we accept constructivist learning theory as a way of describing how students learn, we must also acknowledge that students will learn from many different forms of

instruction. The constructivist pedagogical approach captured within the five elements described above is only one way of helping students learn. A theory of teaching could, in fact, encompass a constructivist theory of learning and look very different than the constructivist pedagogical approach described in the literature. It would be well worth re-examining our sense of constructivist pedagogy and, with the help of more empirical research that focuses on student learning and a sense of cultural responsiveness, a teaching theory could be developed that allows for multiple strategies for obtaining goals as well as a sense of effective teaching that rises above and beyond our current conceptions of constructivist pedagogy.

Notes

1 One exception was a form of constructivism that was transformed into pedagogy by John Dewey, although he did not call it constructivism. As Howe and Berv (2000) suggest, however, philosophers do not call themselves constructivists, and seldom use the term.

2 See, for example, the set of chapters in Brophy (2002). This conception of social constructivist teaching is based on a psychological view of constructivism, while taking into account and taking advantage of the social setting of the classroom and an emphasis on dialogue.

3 One exception, for example, was the work that my colleagues and I did with the socially constructed concept of at-riskness (Richardson, Casonova, Placier, & Guilfoyle, 1989). Treating the construct as socially constructed, we were interested in seeing how it played out in the classroom: how the teachers thought about it, identified students as at-risk, and acted toward those students. This was not a sociological study. It was, instead, conducted within a social-psychological framework. However, it started with the sense of at-riskness as a construct that was socially forged for a multitude of different reasons ranging from the structure of federal funding for special education to providing a justification for the difficulty of reaching all children.

4 This remains something of a point of contention. That is, direct instruction appears to be "telling", and this was publicly shunned in the initial descriptions of constructivist pedagogy, and may still be in some conceptions.

5 It is interesting to note that the constructivist literature focuses on understandings, and seldom on skills.

6 Although it should be pointed out that Lampert's engaging and award-winning book employs frameworks and constructs that are applicable across subject matter areas.

7 Although the depth of subject matter of secondary students has also been questioned (McDiarmid, 1990).

8 That is, the teachers clearly stated that they—the teachers—were in control of the curriculum as well as the social and moral goals (Richardson & Ratzlaff, 2001). Further, this was seen in classroom observation, although the students actively participated in classroom activities, and were given responsibility for their learning.

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