

It's not just a mishap

Chapter 2

The Theory Behind Disciplined Inquiry

Understanding theory to me was like "Ah ha!" Teachers hear so much about theory, and when they go to a workshop or an inservice, they usually say, "Skip the theory, just get to the practical stuff." And so much of what I used to do I just did by instinct—I knew what worked, what would bring results, but I never knew why. Theory helped me understand why it worked, why A plus B equals C. I understood how cooperative learning and integrated instruction and sheltered English all went together; it was like the pieces of a puzzle—they all made sense together. I realized the things I was doing weren't just disconnected pieces, but were part of a design. I found out all these practical ideas I was using had a theoretical foundation behind them.

Knowing theory makes my teaching better. I can pick and choose better—I have a better sense of what will work and what won't. A lot of what I used to do was hit or miss; I would try something, and I would never use it again. Now when I consider a new teaching idea, I can filter it through what I know about theory: I can decide whether it adds to my program or whether it's just busy work. When I go to a conference, I can say, "Oh, that helps build schema," or "That's integrated language"—versus some program that's just a hundred questions or something, where I say, "That wouldn't work, it's not authentic." And theory helps me make sure I'm not doing something just because it looks cute, like, "Oh, gee, I'll have them make a scrapbook." Now I might have students make a scrapbook from the point of a view of a character in a novel, because I know it helps them pick out main ideas, develops their ability to understand characters, provides an authentic assessment—it actually teaches something, it isn't just a cute idea. I don't think, "Oh, isn't that cute! Oh, a bear!" I understand why teaching thematically isn't just having a heart or a bear on every handout.

—Rhoda Coleman, fifth-grade teacher, Buford Avenue School, Lennox, California

Rhoda is right: sometimes teachers hear a lot of theory, and usually it doesn't seem as important as the practical ideas—the good stuff. And some theory really isn't very useful: we've all heard or read theories that obviously came about in a laboratory or office, developed by people who don't seem to have any idea what real children do in real classrooms. But theory, like teaching, can be good, bad, or somewhere in between. From our perspective, good theory helps teachers make sense of their own experience; it provides them a clearer understanding of what they see in their classrooms every day—the "Ah ha!" Rhoda mentions. Good theory also helps teachers plan more effective and meaningful lessons for their students: just as Rhoda explains, theory allows teachers to separate ideas that teach something important from those that are simply cute, novel, or well-packaged. Rather than devoting years to trial-and-error attempts to find the best lesson ideas, a teacher who understands the theory behind how students learn can more consistently develop effective plans.

In this chapter we lay out the basic theoretical principles that guide our understanding of how to teach history. On the one hand, these principles represent our reading of sociocultural perspectives on learning and contemporary cognitive psychology. On the other, they also reflect key aspects of the best history teaching we've seen. Rather than being removed from the realities of the classroom, then, the theory

Useful theory helps teachers make sense of their own experience.

The research base for much of this chapter is summarized in Bruer (1993), Caine & Caine (1994), Gardner (1991), and Good & Brophy (1994, especially chapter 10)

described in this chapter draws on what we know from our experience with teachers and students. We find these ideas useful in understanding what makes for good teaching, and we think they will help teachers plan their own instruction. Without these principles, the activities we describe in the rest of the book are good but isolated lessons, and teachers may or may not be able to use them in their own classes. But by understanding the theory that guides this approach, teachers can apply and adapt these suggestions to meet the needs of their students.

LEARNING MEANS IN-DEPTH UNDERSTANDING

You have to go into a topic in depth, not just see who can get to the American Revolution by May; otherwise, they won't remember it. I may be slow because I'm just on Jamestown, but my students still remember what they learned about Native Americans. It's important that they're actually *doing* history, not just memorizing information.

—Rebecca Valbuena, fifth-grade teacher, DeAnza School, Baldwin Park, California

I don't remember very much about the Revolution, but it doesn't matter. We'll get it again in junior high.

—Fifth-grade student (1 month after studying the topic), Fort Thomas, Kentucky

In any subject, some people achieve more than others. An engineer can build a better bridge than a college undergraduate, for example, and an experienced doctor diagnoses illness better than a first-year medical student. Among younger students, some read better than others, some solve math problems more easily, and some are better dancers, musicians, basketball players, and so on. Psychological research that investigates the difference between experts in various fields from novices indicates that those who are more capable do not simply know more, nor do they necessarily have any greater general intelligence or reasoning ability; rather, they have a better understanding of the key concepts in their field, and a more developed understanding of when and how to apply those concepts. In the language of cognitive psychology, experts have more organized schemas, or mental representations of knowledge, than novices.

Experts have more organized and well-developed schemas than novices. Chi (1976), Chi, Feltovich, & Glaser (1981), Sternberg & Horvath (1995)

Memorizing facts rarely results in conceptual understanding.

From this perspective, simply knowing more facts does not necessarily mean greater understanding; students may learn facts without having any idea what they mean or why they're important. In elementary school, for example, many children memorize multiplication and division tables to perfection but have no idea how to solve real-life problems; even though they know plenty of "math facts," they don't know enough about what the operations mean to use them in real situations: they know facts about division without really understanding what division is all about. Similarly, many students memorize the names of state capitals in fifth grade, but few have any idea what a state capital is or what goes on there. They have retained some trivial facts about place-name geography but have no understanding of geographical principles.

Teachers help students learn important organizing ideas. See especially Good & Brophy (1994) and Prawca (1989a, 1989b)

National Council for the Social Studies (1994), National Council of Teachers of Mathematics (1989), National Research Council (1996)

Good teaching focuses on helping students learn important organizing ideas, rather than simply covering massive amounts of factual information. Teaching writing, for example, means teaching students to communicate—how to write for an audience, how to organize information, how to revise, and so on—not how to diagram sentences; diagramming sentences simply doesn't have anything to do with becoming a good writer. Similarly, teaching geography means focusing on human-environmental interactions, the movement of people, goods, and ideas through space, and so on—not the names of state capitals; knowing the names of state capitals has nothing to do with the key concepts of geography. The standards issued by national organizations in science, math, and social studies all focus on developing this kind of in-depth understanding.

Such learning does not involve the same all-or-nothing mastery as remembering isolated facts: either you know the capital of Wyoming or you don't, but understanding complicated concepts like culture, environment, society, and the like develop gradually over time; students learn more each time they encounter them. In-depth understanding also requires the time for sustained attention: students have to study topics in enough depth to understand them and to reflect on the meaning and significance of what they've studied. While it's certainly possible to cover a great deal of information by going through a textbook one week at a time, students are unlikely to learn anything important from doing so. The study of history, unfortunately, has been one of the worst offenders in this regard; too many students experience history as part of a "race to get to the American Revolution by May," in Rebecca's words. When students rush through dates and events without understanding their reasons or significance, the best they can hope for is to "get it again in junior high," as the fifth grader quoted earlier says.

To develop an in-depth understanding of history, students have to engage in sustained study of the kinds of topics identified in the first chapter. Instead of moving through the major events of world history chronologically, for example, a teacher might devote a 2-month unit to the history of human interaction with the environment. A unit like that would not mean identifying every time people and the environment have interacted—obviously impossible!—but developing students' understanding of the variety of ways people throughout time have adapted to the environment, changed it to meet their needs, competed for resources, and so on. And rather than learning a list of names, dates, and events (to be forgotten quickly), students would be doing history, as Rebecca suggests—questioning, collecting data, interpreting, explaining. Admittedly, a teacher may cover less material that way, but students will learn more of the things that make for expert understanding.

In-depth understanding requires sustained study. Newmann, Secada, & Wehlage (1995), Wells & Chang-Wells (1992)

History involves the sustained study of important topics.

INSTRUCTION MUST BUILD ON STUDENTS' PRIOR KNOWLEDGE

You have to start with what the kids already know. Just reading the text and answering the questions at the end of the chapter doesn't work for my LEP [limited English proficient] students, and I really don't think it works for any students. You can't just let them go in and read a chapter cold. If you can't build on something they already know, they can't learn it. They can't understand it if they have no background; they don't get a thing out of it, and you're wasting your time. Students need to put themselves in the place of someone at the time, or read a diary entry—something more personal. A lot of times history is "untouchable," and if I can say, "This is what an 11-year-old girl really wrote," they're like, "Wow!" That really makes it come alive. They like to read about everyday people who lived a long time ago, even more than famous people, because they can compare it more to their own lives.

—Rebecca Valbuena

No one these days seriously believes that children enter schools as "blank slates," or that the purpose of instruction is simply to fill them up with information. Before they ever arrive in a classroom, children have developed an understanding of the world around them: they have their own ideas about language, counting, the natural world, and even social relations. These intuitive theories are based on their direct experiences with people and objects, and often are quite accurate: preschoolers know that fire is hot, that three cookies is more than one, that sometimes people don't tell the truth, and so on. Other times, their ideas are inaccurate, or at least incomplete—as when they believe that the world is flat, that there are no more Native Americans, or that banks store their customers' money in individual boxes.

To help students develop their understanding, teachers must directly address the knowledge students bring with them to school, and build on it whenever possible. In order to learn, people have to link new experiences to previous understanding: they

Children do not enter school as blank slates.

Instruction builds on the knowledge and experience children bring to school.

Carey (1985)

Piaget (1952)

have to *restructure* their mental schemas. Sometimes people simply add new information; an automobile mechanic who knows how engines work adds to her schema when she works on a model she's never encountered before. Other times restructuring involves more complete shifts in understanding, as when young children start to understand that plants are alive just like animals. In either case, learning is not passive: people have to compare what they encounter to what they already know. As Rebecca notes, if you can't build on what students know, they can't learn.

See especially Caine & Caine (1994) and Gardner (1991b)

Teachers help students connect the curriculum to their prior knowledge.

Unfortunately, textbooks and other materials rarely devote much attention to students' prior understanding. Of course, every child, every class, and every community is different, and no textbook can address their variety of experiences or range of understandings. But research on learning and instruction consistently shows that when school experiences aren't linked to prior understanding, students learn very little: when they can't connect what they're supposed to learn at school to their own schemas, their understanding is notoriously superficial. Every teacher has thought her class learned something new, only to discover they had forgotten it a week later or couldn't apply it in a new situation. This kind of superficial learning occurs precisely because students have only memorized information or procedures, rather than actually modifying their understanding.

To understand information—not simply repeat it—students must connect it to their previous understanding. Textbooks cannot do that; instead, teachers—the people who know students best—have to find out what they know and how to build on that knowledge. In science, having students make predictions before conducting experiments is an obvious way of finding out what they know, and having them compare observations to predictions helps connect new knowledge and old. Other methods for building on students' understanding apply across the curriculum. By making a web of students' ideas about a new topic on a large sheet of chart paper, for example, the teacher can simultaneously find out what students know and alert them to relevant background knowledge they may have; returning to the web throughout the lesson to discuss information that was correct and that needs to be added or revised helps make connections clear to students.

Wellman & Gelman (1992)

Children strive to make "human sense" of the world. Donaldson (1978)

Of course, webs and other graphic organizers are also useful in history. One of the most important ways of connecting history to what students already know, though, is to focus on the lives of *people* in the past. People are one of the subjects children understand best; even from a very young age, they can reason about the beliefs and intentions of others. Margaret Donaldson maintains that for something to make sense to young children, it must make *human sense*: children, she argues, understand situations in terms of how they involve people. Historians also focus on the human sense of situations: much of their work involves studying the beliefs and intentions of people in the past. When the race is on to make it through the textbook, though, the human element is first to get pushed aside, and students wind up studying the things they know the least about—politics, diplomacy, and government. The absence of people in the study of history may account for the lack of enthusiasm which has been attributed to the subject. By focusing on people, teachers can both build on what students know best and give them a better sense of what historians actually do.

PEOPLE LEARN THROUGH DISCIPLINED INQUIRY

There's the synergistic effect of minds working together, hearing what others are doing—it gets my neurons sparking, it multiplies what everybody can do. Then there's also the democratic process: everybody having a say, everybody participating, not just the teacher standing up and lecturing. It also gives them a chance to discover, instead of just *telling* them; they get to hear different points of view, and discuss outcomes on their own, rather than just you connecting the dots for them.

—Rhoda Coleman

Although teachers can activate students' prior knowledge and call attention to the way it relates to new experiences, they cannot directly teach understanding—they cannot do the mental work for their students. Both research on human learning and our own experience as teachers directly contradict the “transmission” model of learning, which assumes knowledge goes directly from one source (whether a teacher or textbook) to another (the student). We cannot simply fill children up with information, no matter how elaborate our system of rewards and punishments; we can't “connect the dots” for them. People learn when they seek answers to the questions that matter to them; their understanding changes only when they become dissatisfied with what they know. The process of asking meaningful questions, finding information, drawing conclusions, and reflecting on possible solutions is known as *inquiry*.

Fortunately, children are naturally inquisitive learners who strive to make sense of their world. Anyone with young children knows the challenge of keeping up with their urge to explore and their ever-present question, “Why?” Older children, meanwhile, often devote their energy to demonstrating just how much they do know. But although humans are naturally inquisitive, most people do not sit around and memorize trivia just for the fun of it. Outside of school, learning almost always takes place within the context of *purposeful* activity: people learn because they need to know how to do something important, and they can see examples of what it looks like to accomplish those tasks. Young children, for instance, learn to talk because they need to communicate, and they continually see people doing exactly that. Similarly, adolescents who hope to become dancers, musicians, or athletes learn the skills necessary to accomplish those goals, and **there is no** shortage of expert performances for them to imitate. Not surprisingly, people learn best when they know why they are learning, and can see what it looks like to do it successfully.

This kind of purposeful learning always takes place in a sociocultural context; that larger setting determines what knowledge is worth having, how to acquire it, and how to use it. Scientists, for example, do not pursue their investigations in isolation: the questions they ask, the standards they apply, and the way they report their results are all the product of ongoing debate and discussion among a community of scholars—and the concerns and values of the wider society also influence that community. In every field, knowledge has meaning only in the context of the questions, procedures, and debate in which it develops. Nor does any single community have a monopoly on knowledge; understanding of the environment, for example, may come about very differently depending on whether one is a farmer, research scientist, or environmentalist. Meaningful learning, then, involves not just mastering the content of a subject (no matter how deeply) but understanding the nature and purpose of that subject—the diverse ways of thinking and acting mathematically, historically, or scientifically in our society. We use the term *disciplined inquiry* to refer to purposeful investigations that take place within a community that establishes the goals, standards, and procedures of study.

* Teachers can capitalize on children's natural enthusiasm for learning by making their classrooms places where students explore important and meaningful questions. For most of the last century, educators have argued for the importance of teaching students how to use and apply knowledge in authentic situations—rather than simply expecting them to learn isolated or irrelevant information. The tasks students encounter at school should be similar to those people face outside school. By engaging in the same kinds of challenges as scientists, citizens, artists, businesspeople, and so on, students will better understand the purpose of their studies and will be more likely to understand, retain, and apply what they learn. Seeing their peers, teachers, and other community members engaged in these processes is a central feature of this approach.

☐ Unfortunately, schools rarely engage students in authentic inquiry; their experiences are usually determined by the content of textbooks or curriculum guides rather than the pursuit of meaningful knowledge. Children have few chances to investigate

See, for example, Brooks & Brooks (1993), Caine & Caine (1994), Duckworth (1987), Taylor (1993), Wells & Chang-Wells (1992)

People learn when they seek answers to questions that matter to them. Dewey (1933, 1956)

Inquiry is the process of asking meaningful questions, finding information, drawing conclusions, and reflecting on solutions.

Children are naturally inquisitive learners. Dewey (1933, 1956)

People learn best when they understand the purpose of their learning.

Learning takes place within a sociocultural context. Lave & Wenger (1991), Resnick (1987), Rogoff (1990), Vygotsky (1978)

Disciplined inquiry takes place within a community that establishes the goals, standards, and procedures of study. For more on disciplined inquiry, see Neumann et al. (1995)

Students use and apply knowledge in authentic situations. Wiggins (1993)

questions that have meaning for them, or that engage them in realistic challenges. As a result, schools rarely provide students with any clear sense of purpose; many have no idea why they are expected to study math, science, history, or any other subject, since they rarely see what it means to use those subjects. Although students may sometimes be admonished that they will "need this later," they rarely see before them examples of expert performances in science, history, writing, and so on; instead, they see only artificial exercises removed from meaningful application.

Once again, the study of history has been one of the worst offenders. In the middle grades, studying history all too often means reading a chapter in a textbook and answering the questions at the end (or, worse, memorizing the names of presidents). In the early grades, history rarely amounts to more than learning a few isolated facts about famous people connected to major holidays. In neither case do students have the chance to ask and answer questions important to them; in neither case do they learn how historians work; in neither case do they see examples of the authentic use of historical knowledge. In fact, when asked why they think history is a subject at school or how it might help them, students sometimes can think of little except that it might be useful if they were ever on *Jeopardy!*

To get more from history than preparation for a game show, students must take part in disciplined inquiry, not just repeat isolated trivia. The study of history must begin with the concerns and interests of students, and help them find answers. This means that students have to learn what it means to ask and answer historical questions—how to find information, how to evaluate sources, how to reconcile conflicting accounts, how to create an interpretive account. And students certainly must learn what the authentic application of historical knowledge looks like; they must see how history can explain the present, and they must see this in the most authentic of ways—through the comparison of conflicting ideas about the nature and significance of the past.

Barton (1994a), VanSledright (1995)

History involves disciplined inquiry.

See also Seixas (1993a)

Authentic historical study involves the comparison of conflicting ideas.

TEACHING MEANS SCAFFOLDING

You have to provide them with structure. You don't just say, "Write a paragraph"; you introduce them to some vocabulary, brainstorm about the topic, make comparison charts and graphic organizers, and then help them use them to write a paragraph. If you want them to produce something, you have to provide structure; you have to take them where they are and move them one step further.

—Rebecca Valbuena

People learn through interaction with more knowledgeable members of a community. Lave & Wenger (1991), Rogoff (1990), Vygotsky (1978)

Outside of school, learning almost always involves ongoing collaboration among the members of a community, as more knowledgeable members help newcomers become full-fledged participants in activities they both consider worthwhile. Consider, for example, how young children learn to talk. The process extends over many years and involves countless thousands of utterances, as the child tries to speak and the adult accepts and encourages the attempt—while usually also modeling a more fluent way of expressing what the child wants to say. Although the precise kinds of interaction may vary from one culture (or subculture) to the next, a child who has no opportunity at all to interact will not learn to talk; she constructs her understanding of language through interaction with fluent speakers.

To take a somewhat different example, professional schools require prospective practitioners—doctors, teachers, and so on—to engage in extensive field experiences where experts help them learn to deal with real-life situations. No one would trust a doctor who had learned medicine only from a book; in order to treat patients, doctors must undergo a lengthy period of practical training. During this time, experienced practitioners model the practical use of medical knowledge, and novices are gradually given more responsibility for treating patients on their own. Most learning outside the classroom follows a similar pattern. Whether related to traditional economic tasks

(farming, cooking, quilting), the work of modern careers, or pursuits such as sports or the fine arts, learning usually involves a kind of *apprenticeship*, in which those who are more knowledgeable gradually help novices develop expertise. They provide them with the structure Rebecca mentions.

Unfortunately, children rarely have the chance to take part in this kind of sustained interaction at school. Most often, they are expected to listen while teachers transmit information to them. Participation is usually limited to the common *initiation-response-evaluation* pattern: the teacher asks a question, a student responds, and the teacher tells her whether the answer was right. The purpose of such interactions is to assess students' retention of information, not to help them pursue questions or issues that interest them. Other times, students may be given independent assignments or expected to "do research," but aren't taught how to go about the process—and few students have the skills necessary to conduct inquiry on their own. Although inquiry is essential to education, simply assigning such tasks won't guarantee meaningful results. Most students need direct help to make the most of their experiences, and one of the teacher's most important responsibilities is providing them with the structure they need in order to learn—a process known as *scaffolding*. Just as scaffolding on a construction project supports people as they work, scaffolding in the classroom supports students as they learn. Children learn best when they take part in joint activities with teachers (and more knowledgeable peers) who help them go about their studies.

Scaffolding takes many forms. First, teachers have to develop students' interest in accomplishing tasks; although children are naturally inquisitive, they are more likely to follow through with their investigations when teachers help them maintain interest. When students do not meet with immediate success on a project, many quickly become frustrated; teachers, then, have to actively support and encourage them. This support often involves breaking a task down into manageable components. We certainly don't advocate a behaviorist "task analysis" that teaches small and isolated skills; but as Rebecca explains, students can write a better paragraph when they become familiar with vocabulary, engage in brainstorming, and use graphic organizers in preparation for writing rather than simply being told, "Write a paragraph." Similarly, students learn more from inquiry when they develop questions, identify resources, plan a presentation, and so on than when they are just sent to the library and told to "do research." As Rebecca says, if you want them to produce something, you have to provide them with structure.

Another crucial element of this scaffolding is the teacher's modeling of procedures and her feedback to students on their accomplishment. As suggested earlier, teachers must demonstrate what it looks like to do history; just as students need to see their teachers reading and writing, they need to see them grappling with historical questions, collecting information, making generalizations, and so. Not surprisingly, the teacher has to show students what it looks like to accomplish a task successfully; if they don't see examples, they won't know what they are supposed to do. Just as critically, the teacher has to give students feedback on their performances: she must help students understand how their work compares to ideal versions. Without such feedback, many students will not know if they are accomplishing a task successfully or not. The ultimate goal of this scaffolding is to transfer control from teacher to student by enabling students to plan their learning and monitor their own progress—abilities sometimes referred to as *metacognition*.

CONCLUSIONS

In this chapter we have identified the aspects of human learning that we think provide the best guidance for teaching history. Based both on contemporary research in cognitive psychology and on our own experience, we have argued that the best teaching focuses on in-depth understanding of important ideas; builds on what

In apprenticeships, those who are more knowledgeable help novices develop expertise.

Carzen (1988)

Teachers scaffold students' understanding by providing the structure they need to be successful.

Teachers help students develop the skills necessary to engage in inquiry.

Teachers model procedures and provide feedback to students.

Metacognition refers to students' ability to plan their learning and monitor their progress.

students already know; engages students in collaborative, disciplined inquiry, in which they investigate important questions in authentic ways; and involves extensive scaffolding. Although we have tried to describe these principles separately, they have little meaning in isolation. Teachers will not succeed if they focus on important ideas but do not build on students' prior knowledge, if they require inquiry but don't teach students how to do it, or if they teach problem-solving but never address significant content. By devoting consistent attention to these principles in an integrated way, however, teachers can develop meaningful and effective instruction for students from a variety of backgrounds in a variety of circumstances. As Rebecca explains in our final quote, understanding this theoretical background ensures that good teaching isn't just a mishap.

I can't tell you how much [knowing about theory] has changed me; it all makes sense. Being a good teacher means you know what to do and you have a purpose for what you're doing. Everything you do has to have a theoretical base, from classroom management on. I think a lot of teachers do things naturally, but if you know the theory beforehand, it's so much more satisfying: it's not just a mishap, you're doing it on purpose. Knowing the theory takes you to a level beyond.

—Rebecca Valbuena

DOING HISTORY :

Investigating With Children
in Elementary and Middle Schools



LINDA S. LEVSTIK
UNIVERSITY OF KENTUCKY

KEITH C. BARTON
NORTHERN KENTUCKY UNIVERSITY



LAWRENCE ERLBAUM ASSOCIATES, PUBLISHERS
1997 Mahwah, New Jersey