

CHAPTER 2

**Developing Disciplinary Discourses, Literacies, and Identities:
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Approximately ten years ago, as I read Colin Lankshear's (1997), *Changing Literacies*, I was struck by an example James Gee gave on the question of what it meant to be critically literate, an argument I extend to literacy *writ large*. Gee argued that literacy requires attention to "elements-in-coordinations-in-Discourses" (Gee, in Lankshear, 1997, p. xvii), and to illustrate what he meant, he drew from Roger Lewontin's (1991) *Biology as Ideology*. Lewontin distinguished between how a medical scientist would explain the cause of the disease tuberculosis and what a social historian might label as the cause. According to Lewontin, the biologist would most likely claim that the cause of tuberculosis is the *tubercle bacillus*, whereas the social historian would more likely attribute cause to unregulated industrial capitalism in the nineteenth century. I recall being fascinated by the example at the time, not only because of how aptly it illustrated Gee's argument about elements-in-coordination-in-Discourses, but also because it reminded me that literacy is, at its core, about knowledge: comprehending, interpreting, questioning, and critiquing depend heavily on knowing something about the world and how it works. In other words, it is difficult to know how elements are coordinated in Discourses if one does not know about the requisite elements, and know them rather deeply.

The example also beautifully illustrates how knowledge and identity live in relationship to one another, and both to practices of a domain. The medical scientist's explanation for the cause of tuberculosis is a function of both her or his knowledge and her or his ways of knowing

(how to explain cause and effect, for example), which stem from the identities she has developed after years of participating in practices of medical science, targeted as pinpointing sources of illness for the purpose of eradicating them. The medical scientist could not, however, begin to engage in the practices of the domain—would not even know the right questions to ask—without certain kinds of conceptual understandings of the domain—without knowledge—having been developed over time.

In this chapter, I want to extend that point about knowledge to theory and research on developing and negotiating disciplinary discourses, literacies, and identities, particularly in and with adolescents. As Lewontin's observation illustrates, learning in the disciplines is important to developing literacy and thinking skills. Furthermore, many argue that developing disciplinary identities is important to learning in the disciplines (Gee, 2001; Lave, 1996). But both seem to depend rather heavily on knowledge. And yet, in most recent sociocultural and New Literacy Studies (NLS) work on learning, discourse, and identity, *knowledge* seems to take a back seat, with *participation* in learning communities viewed as the key to developing the disciplinary identities necessary for deep learning. However, as Ford and Forman (2006) argue, "Although participation can be considered one of several learning objectives, participation itself is not 'acquired.' That is, we need to address ways in which the individual is affected by such participation and what resources he or she 'takes away' from these instructional experiences" (p. 2).

My goal then is to put knowledge—or the "residue of participation" (Moje & Lewis, 2007)—in a more prominent position in work on identity, discourse, and learning. In doing so, however, I do not wish to be read as advocating rote transfer of bits of information or of prescribing the nature and type of knowledge to be constructed, as some scholars have (Hirsch,

2006; Ravitch & Finn, 1987). Consequently, I examine theories of knowledge as dynamically produced in interaction and question the role that knowledge-in-action plays in developing a disciplinary identity and concomitant disciplinary literacy and discourse skills. Specifically, if knowledge and identity develop hand-in-hand, then what are the practices for supporting knowledge-and-identity development-in-action, especially in highly stressed, ethnically and racially heterogeneous classroom settings? My goal is to generate a more robust theory of the relationship among discourses, identities, and knowledge development *in school contexts*. I conclude that we do not yet have enough information for truly robust theorizing of domain knowledge and identity development, and I call for design experiments that draw from the principles of sociocultural and NLS theories, but translate them to actual school classrooms.

Teasing Apart the Knowledge-Identity-Discourse-Literacy Conundrum

To begin, I want to try to pull apart what appears to be a conundrum. The conundrum goes like this: Many claim that shifts in identity are both necessary for and emblematic of deep learning (Gee, 2007; Lave, 1993, 1996). Gee, for example, argued:

All deep learning—that is, active, critical learning—is inextricably caught up with identity in a variety of ways . . . People cannot learn in a deep way within a semiotic domain if they are not willing to commit themselves fully to the learning in terms of time, effort, and active engagement. Such a commitment requires that they are willing to see themselves in terms of a new identity, that is, to see themselves as the *kind of person* who can learn, use, and value the new semiotic domain. (p. 54)

Furthermore, as evident in the Gee quote, it is often argued that identities are dependent on engagements in discourses and practices of a particular domain. But, as the Lewontin example

illustrates, engaging in discourses and practices requires knowledge of and skill with those discourses and practices. Even in Gee's (1996) classic example of someone entering a "biker bar,"¹ the person entering the discourse community must have knowledge of the community in order to participate, to take on an identity as "biker" (or not). Thus, identity, it seems, is dependent on knowledge, which in turn helps to develop or even produce new knowledge. It is unlikely that one would be willing to see herself in a new identity about which she knows little. Those who focus on identity, myself included, have done so as a way of understanding the need for people to commit to domain learning, to, in a manner of speaking, *personalize* it. We wanted to bring attention to the power of identifying (both self and other identifications) in learning. But the focus on identity may have masked the need to simultaneously develop teaching practices for developing knowledge-in-practice in formal classroom settings.

In fact, some writers have argued that in the interest in foregrounding knowledge as constructed, educators and education scholars too often neglect wholesale the knowledge that learners need to bring forward into a new learning situation. E. D. Hirsch (2006), for example, has written extensively on the need to teach "certain explicit, substantive things about history, science and literature" and, further, to "test students on such knowledge" (see also Hirsch, www.coreknowledge.org/blog, February 16, 2008). Invoking Hirsch reminds us that perspectives on knowledge development often seem to be stuck in a pendulum swing between a "banking view" (Freire, 1970), of static information delivered from expert minds into blank ones, and a radical constructivist view (Glaserfeld, 1995), wherein the individual constructs all knowledge on the basis of the interpretation of a particular sequence of experiences. Hirsch, for his part, argues that the answer to the knowledge problem is a matter of requiring more core courses in

¹ "Biker" refers to a person who rides motorcycles (as opposed to bicycles), and a "biker bar" is a drinking establishment frequented by or that caters to "bikers."

traditional subjects; Hirsch's argument, however, fails to attend to the fact that core curricula are required in many states and still students fail to achieve at high levels. Indeed, the more important question that Hirsch, and other knowledge advocates, should ask is how and to what end knowledge is being taught. If taught as the simple transfer of information from one mind into another and if engaged only for the purposes of demonstrating one's knowledge on a test, then knowledge is not being taught, regardless of whether or not core curricula are employed.

Mired in the binary battle of either banking or constructing all knowledge anew, many scholars have avoided taking on the question of how knowledge and identity develop in tandem and thus support learning. The construction of knowledge, and pedagogical practices to support knowledge construction, have, of course, been theorized for years (e.g., Blumenfeld, Marx, Patrick, & Krajcik, 1997; Cobb, 1994; Cobb & Bowers, 1999; Driver, Asoko, Leach, Mortimer, & Scott, 1994). Despite attention in areas such as literacy to constructs such as *prior knowledge*, however, a number of current instructional regimes operate without attention to how knowledge, identities, or practices are developed. For example, at the secondary school level, in the literacy policy world, we see the demand for teachers to become more proficient in strategy instruction (Ford & Forman, 2006) and, in relation to disciplinary literacy, to *content literacy strategy* teaching in particular, often with little attention either to the identities young people bring to school or to the knowledge demanded to engage in the texts of different disciplinary subject-matter areas. The attention to strategy instruction is not problematic in and of itself; many cognitive strategies, tools, or practices are critical to the development of strong critical literacy skills in any domain (Biancarosa & Snow, 2004; Buehl, 2002). Indeed, most cognitive reading strategies are developed on the idea that strategic reading makes links between knowledge to be learned and the knowledge and experience already constructed. In some recent initiatives,

however, strategy instruction seems to be largely about providing tools to extract information from text. Strategies—absent some level of knowledge, a purpose for engaging in the literate practice, and an identification with the domain or the purpose for reading—will not take readers or writers very far.

Alternative approaches such as those offered in NLS and sociocultural theory, however, *do* acknowledge the important role of knowledge built in past participation in a community of practice (Moje & Lewis, 2007), often explaining knowledge as something that “develops” in practice as needed (Gee, 2007). These theories, unlike most sociocognitive studies (e.g., Blumenfeld et al., 1991; Cobb & Bowers, 1999) also address the importance of identities as an aspect of learning. But most sociocultural and NLS theories are not rooted in classroom or school practice, wherein multiple students of different backgrounds come together around topics that may or may not be of interest to them, with few resources and with teachers who may or may not know them particularly well and thus may not struggle to facilitate the development of knowledge-in-practice. As Brian Street (2003) argues, the greatest challenge to work from the NLS perspective is the question of how theories from focused studies of literate practice in everyday contexts might inform the radically different settings and contexts of schooling (i.e., institutionalized, formal teaching and learning practices with masses of youth). The question of how knowledge gets developed in practice, in classrooms, while simultaneously developing disciplinary identities, is one example of the challenge in translating sociocultural and NLS theories to classroom practice.

Why Do We Care About Identities and What are They?

Before moving more fully into the discussion of the relationship among knowledge, identity, discourse, and literacy development, it is worth a side trip to examine the recent *identity*

turn in literacy studies (and particularly in NLS) and to offer some perspectives on identities.

The increasing interest among a number of scholars, educators, and policy makers in developing disciplinary literacy skills among youth makes these questions especially important. Many educators are committed to engaging young people in deep learning in and across a variety of domains and hope to support young people's learning of literacy and other representational practices within and across those domains even as we draw from the interests, knowledges, discourses, and practices young people bring to the learning environment. As part of that quest, educators are turning their attention to issues of identity associated with proficiency in a domain of knowledge and practice, arguing that one cannot take on the skills and practices of the discipline without shifting one's identities.

What is an identity or, in keeping with current views on identity in education research, what are identities? Many different takes on the subject of identity can be uncovered in the literature, too many to review here (cf. Moje & Luke, in press, for a more comprehensive review of identity and literacy theories and research). In brief, some scholars view identities as discursive constructions, categories to which people are assigned or assign themselves (Chouliaraki, 2003); others see identities as narratives or stories that people tell about themselves and others (Sfard & Prusak, 2005), and still others see identities as enactments in particular relationships and positions (Holland & Leander, 2004; Leander, 2004; Moje, 2004; Wortham, 2001). Specifically, from my perspective, identities are enactments of self, shaped by time, space, and relationships. Because identities are embedded in relationships, they are also embedded in and, at times constitutive of, relations of power. Research on identities and literacies must take into account not only people's discursive constructions but also their enactments and other people's responses to enactments of identity.

Disciplinary identities, then, are enactments of self that reflect the habits of mind, practices, and discourses—or the ways of knowing, doing, thinking, and acting (Gee, 1996)—associated with work in the disciplines of humanities, the social sciences, and the natural sciences (Ford & Forman, 2006).² Disciplinary identities, in my parlance, will refer to the discourses and practices that an historian or chemist or mathematician might engage in when producing, representing, and critiquing knowledge in her or his everyday work. These identities and practices often overlap with academic identities and practices, in large part because disciplinary knowledge and practice is typically learned in formal academic settings; nonetheless, there is a specificity to disciplinary knowledge, practice, and identity that is not captured in academic knowledge, practices, and identities. A person who enacts a disciplinary identity sees herself and is seen by others as doing the things a member of the disciplines does (Bain, 2006). For example, in specifying what it means to do the work of history, Bain wrote, “Historians have long defined history as investigation, casting themselves in the role of detectives seeking plausible explanations for historical events, trends, and controversies” (p. 2080).³ According to Bain, then, membership in the domain of history not only involves identifications (both our own self-identifications and others’ identifications of us), but also particular practices, discourses, disciplinary facts and information, and conceptual frames (i.e., disciplinary *concepts*) (cf. Hobsbawm, 1997; Stevens & Hall, 1998; Stevens, O’Connor, Garrison, Jocus, & Amos, 2008). Membership in disciplinary domains shapes opportunities to

² It is useful to distinguish here between disciplinary and academic identities, although there is an important relationship between the two concepts. Academic identities are those associated with doing the work of school. These might include what Green (1983) refers to as “studenting” practices, that is, the practices of raising hands, completing assignments, speaking in certain ways, and acting within particular authority relations and roles, among many other subtle qualities of “school” practice.

³ Because much of my current work is focused in history and science, I turn often to those disciplines for examples. Any of the disciplines, and many fields of study—or sub-disciplines—apply here, for the disciplines, I argue, represent groups of people who share norms and conventions for discourse and practice. In that sense, the disciplines constitute cultures.

learn and, ultimately, learning itself (Stevens et al. 2008). From this perspective, one who has really learned some *conceptual* aspect of a discipline (what we often think of as *knowledge*), has also learned the *practices* (Ford & Forman, 2006) and the *identities* of the discipline (Gee, 2007; Moje, 2008).

One important caveat is that it might be argued that disciplinary knowledge, practices, discourses, and identities are not really of central importance in the 21st century. Some might claim that more important knowledge is embedded in social networking systems and the “convergence” of knowledge networks (Jenkins, 2006). Others would argue that more critical than developing knowledge (regardless of how knowledge is conceptualized) is the need to develop skills for accessing, evaluating, critiquing, and producing information.

These are fair critiques. It is clear that social networking and popular cultural practices are powerful, as are skills for accessing and evaluating information that swirls about us in a knowledge and information economy. However, neither social networking nor information management operate in isolation from disciplinary knowledge, discourse, and practice, particularly if we move beyond caricatures of disciplinary knowledge as reified, stale, canonized knowledge of the disciplines. By casting disciplinary knowledge as dependent on broad and deep knowledge of world events, relationships, natural and social phenomena, people, cultures, mathematical theorems, and politics and policies that people engage as they live, work, and act in the everyday world, we can then view disciplinary knowledge and practice as an aspect of everyday life. Such a stance topples it from a privileged position and makes it more accessible to a host of people. The toppling of disciplinary knowledge’s privilege, however, requires that more people gain access to the knowledge and practices of the disciplines so that they can “speak

back” to those in power. And this speaking back, of necessity, demands more than just opportunities to critique. As Bain (2006) argues in relation to classroom history teaching:

To talk differently to the sources of classroom authority, students must not only appropriate the tools of the discipline but must also disturb their conventional interactions with classroom authority, assuming new status, role, and voice in relationship to texts and teachers. (p. 2086)

Bain uses the words “status, role, and voice,” but we could replace those with identities, interpreting his point to be that one cannot critique unless one identifies with the discipline, and one cannot identify with the discipline without the tools of the discipline. Some of those tools are practices of reading and writing in particular ways (cf. Bain, 2005; Hand & Keys, 1999; Hand, Hohenshell, & Prain, 2004; Hand, Wallace, & Yang, 2004; Wineburg, 1991, 1998, 2001). Other tools are knowledge tools. That is, taking authority and/or changing status, role, and voice both require some knowledge, of the domain itself and of the larger world. Acknowledging this point, however, raises the thorny question of how teachers enable that knowledge development while also encouraging identifications.

An Example from Practice

To put a finer point on the questions raised above, I draw on an example from a co-teaching opportunity I had a few years ago. I have written about this experience extensively in Moje and Speyer (2008); here I provide just a few details of context to set the stage for the practical experience that brought many of the aforementioned concerns to light for me as a teacher, researcher, and theorist. I emphasize that these are theoretical as well as practical concerns, concerns that cannot be dismissed by simply pointing out the vagaries or problematics of school context. All teaching and learning occur in particular contexts, spaces, times, and

relationships, as do all enactments of identities. If we are serious about our theories of learning, discourse, and identity, then we must acknowledge the challenges of real local and particular contexts in which a great deal of teaching and learning occurs.

This experience took place in a high school in Detroit, Michigan, USA. The high school is located in a predominantly Latino/a community, with a majority Mexican, Mexicano/a and Mexican-American student population. I co-taught with Jennifer Speyer three classes of Grade 11 students (approximately 16-18 years of age) in a course called *Global Issues*. The course was designed to replace what used to be referred to as *world history* courses. This broad topic focus allowed for teachers to draw on historical, political, social, and cultural events, experiences, and concepts to teach young people about the larger world in which they live. In addition to the general U.S. history and geography studies received in elementary school, all students who had attended Michigan schools in grades eight, nine, and ten had two years of upper-level U.S. history and one year of upper-level geography. Speyer and I conceived of this unit as a kind of design experiment, testing for ourselves how we might design a focused history learning experience that drew from students' knowledge and experience and also built new knowledge via the reading and analysis of a host of primary, secondary, and tertiary (textbook) sources.

We designed a two-week unit on U.S. immigration law throughout history. We chose immigration because many of the students are immigrants themselves, have immediate family members who are immigrants, or know extended family and friends who have immigrated. Most community members come from Mexico—across a diverse area, but with northern and southern regional divisions lived out in the community—and some youth from Central and South American nations, with the greatest number (after Mexican immigrants) from Puerto Rico and the Dominican Republic. Our hope was that the students' funds of knowledge about Latino/a

immigration issues and about Latin American countries would provide a scaffold on which they could learn more about current and past immigration laws in the United States. We also sought to make an immediate connection to the imminent “May Day March,” a planned protest against discriminatory immigration practices. It was widely assumed that the school would be virtually empty on that Friday, May 1, as most students would be involved in the community action activities. Thus, we established the unit’s purpose for the students as the study of U.S. immigration law historically to provide information necessary for action in the community. Activities for the two-week unit included (a) daily free writing exercises to prompts about immigration issues (e.g., *Do you think that anyone should be able to immigrate into the U.S. at any time? Why?*), (b) primary source and other text reading (e.g., laws, journal entries, poetry, political cartoons) and discussion, (c) examination and production of visual representations of the concepts and issues of immigrations, (d) oral debates, and (e) formal essay writing (exact form to be determined by students).

The unit was progressing nicely until we encountered a stumbling block, one that revealed how lack of sophisticated domain knowledge—both conceptual and factual—can make critical disciplinary reading difficult. We had reached the point in the unit where we wanted to move beyond questions about immigration law in the U.S. to a study of U.S. immigration law over time. The goal was to engage students in an analysis of any patterns to the law; our curricular goal was for students to see that the laws, regardless of time period, typically sought to exclude some groups from immigrating and to privilege others. To generate discussion and engage the students in making sense of the laws, we distributed excerpts of the written texts of key immigration laws to small groups of students and asked them to draw a representation of the law’s key points. The groups set to work, and many seemed able to dive into the key points,

even when reading archaic language from the laws of 1792 or 1836. This was not so true for the groups who received the Emergency Quota Act of 1921 and the Immigration Law of 1924. To illustrate, here is an excerpt of the Emergency Quota Act of 1921:

Emergency Quota Act of 1921

AN ACT

To limit the immigration of aliens into the United States. Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled...

Sec. 2. (a) That the number of aliens of any nationality who may be admitted under the immigration laws to the United States in any fiscal year shall be limited to 3 per centum of the number of foreign born persons of such nationality resident in the United States as determined by the United States census of 1910.

To put it simply, the students were stumped about how to represent this law, let alone how to take on the role of *investigator*, that is, an historian's identity, in Bain's (2006) discourse. On its surface, the text seemed to represent an equitable law that allowed anyone to immigrate into the U.S. providing that the allowed percentage of the national group's population target had not already been met. Our students' understanding was that everyone could immigrate equally and as a consequence, they didn't know what images to draw. The students found it easy to represent, for example, exclusions in prior laws because they were explicitly marked (e.g., The Chinese Exclusion Act of 1882).

What the students did not recognize, however, about the 1921 and 1924 laws was that the exclusions and privileges were encoded in strategic language of the text. By targeting the population of nationalities resident in the U.S. in 1910, the law effectively reduced the numbers of certain groups who could immigrate because their population numbers were lower in that year than in 1921 (the Immigration Law of 1924 took even more dramatic measures by shifting the percentage of immigrants allowed to 2% and the target population year to 1890). To fully understand the implications of this law, the students would have had to know something about

U.S. immigration trends in the late 1800s and early 1900s; more specifically, they needed to know that large numbers of Eastern Europeans were immigrating, and that the numbers of German and English immigrants was on the decline. They would also have to know that those numbers of Eastern European immigrants were lower in 1910 and much lower in 1890, than they were in 1921.

Equally important, the students would need to know that they should be wondering about the text and asking questions of it (i.e., taking an academic identity, at the very least, and a historian's identity, at best). One might wonder, for example, what was the *emergency* that prompted the Emergency Quota Act. One might reasonably question why the law would refer to 1910 when establishing a law for 1921 or, even more surprising, for 1890, when establishing a law for 1924. This kind of questioning demands an identification with the practices of primary source reading (i.e., of historians). However, returning to Bain's conception of a disciplinary identity in history as one of investigator or "detective" who seeks "plausible explanations for historical events, trends, and controversies" (Bain, 2006, p. 2080), we wonder to what extent our students could act as investigators or detectives when they lacked the knowledge necessary to probe this text. Their lack of knowledge even made asking questions of the text rather difficult, as they did not know enough about cultural attitudes of the time period to ask why the dates in question were selected or what the emergency was?

In other words, this experience with a somewhat challenging primary source text revealed a number of different challenges to identification, challenges that revolved around a lack of knowledge of the time period and why immigration laws might be put into effect (i.e., *who* was being included and excluded with this statement, how industrialization might have mattered, how WWI mattered, questions about eugenics, etc.). The text also revealed to us what a lack of

knowledge can do to hamper one's ability to identify with and engage in particular practices and discourses, or *ways of knowing*. It is difficult to take on the role of investigator, or interrogator, of historian, if one has not developed either the conceptual, factual, or pragmatic knowledge necessary to recognize that something exists to be investigated, let alone to question, probe, and search for necessary information.

The solution Speyer and I developed,⁴ albeit on the fly and somewhat inadequately, when facing the problem of how to engage in historical inquiry with students who lacked requisite knowledge of a relevant historical time period, was to take time to develop the necessary knowledge then and there. We did not, however, simply tell the students the information they needed. We built the knowledge by (a) presenting them with tables that represented immigration trends by nation and time, (b) showing the students images of different national groups to help them understand how race and class may have played a role in how quotas were determined, (c) presenting and analyzing political cartoons and other primary sources that shed light on the thinking of the time, (d) showing the students maps of the world so that they could visualize divisions in Europe that might seem immaterial to them, (e) defining words and showing images to make abstract concepts concrete, and (f) engaging the students in debates and essay writing designed to provide them a meaningful space to make use of the knowledge they were building. We even taught them how to figure percentages. Thus, we built knowledge-in-practice, for use when it was needed.

This was difficult work, however. Time was limited because it was necessary to move on in the curriculum, as determined by state standards and pacing charts. As result, we did not meet all of our learning goals, although we did “repair” (Gee, 2007) their knowledge. We label this repair work because much of the conceptual and factual knowledge about the history of

⁴ Described more fully in Moje & Speyer (2008)

immigration law should have already been learned in previous school years. As a result of stopping to do repair work, although it provided rich learning opportunities, these students—whose knowledge and identity development had already been compromised by previous miseducation—were further miseducated in the sense that they lost time to generate new understandings of immigration and to work on the writing for social action on which we had hoped to focus. Thus, despite what we considered to be a powerful learning experience, we felt that we had made significant trade-offs in providing opportunities to learn.

Other challenges included the fact that students moved in and out of the classroom as periods shifted, so ideas written on the board from brainstorming sessions had to be quickly typed in order to refer to them the next day with one class while not spoiling the activity for the next class. The presence of two teachers facilitated this kind of work, but it would probably have been impossible with only one teacher.

More critical, absentee rates were high, individual students were taken from class for special activities, and at times, whole class sessions were cancelled for school assemblies or the presentations of movies and plays. Maintaining a consistent focus on the knowledge being built and on the writing we were developing was extraordinarily difficult. In addition, as Speyer and I recognized gaps in students' knowledge, we were able to fill in those gaps by using the classroom teacher's (personal) computer to search for information on U.S. immigration databases, and we could project (on the classroom teacher's personal LCD projector) or print them (on the classroom teacher's personal printer, using his paper and ink cartridges) as needed. Not all classroom teachers, however, have the resources to supply such equipment themselves, and those resources are not always readily available to every classroom (i.e., they are often shared) in economically stressed districts. It is also worth noting that two teachers working

together can more quickly access and prepare information as needed to build knowledge-in-practice both during and after class.

Finally, although we purposely chose a concept and problem in which the students were interested—the examination of patterns in U.S. immigration law over time and the influence of race and ethnicity in the making of those laws—students’ engagement varied as their own personal interests or crises trumped the more abstract question of the making of immigration law. We also noted that engagement varied with the type of activity; students were highly engaged if we debated or even when we read texts together and engaged in whole-group analyses, but enthusiasm waned when they were faced with individual reading of even average-length texts. We again attribute these points to prior miseducation and the lack of motivation to engage in the effortful processing necessary when faced with a reading task that makes strenuous demands on one’s knowledge (Alexander, 2003; Alexander, Kulikowich, & Jetton, 1994).

Calling on Theory to Help Solve the Knowledge/Identity/Literacy Puzzle

Perhaps the easiest way to unlock this puzzle of the relationship among knowledge, identity, and literacy (or more generally, learning) is to take on a sociocultural perspective that sees learning as situated in people’s engagements in a variety of practices with other people over time (Lave, 1988; Rogoff & Lave, 1984; Scribner & Cole, 1981; Street, 1984; Vygotsky, 1978). In this perspective, knowledge is constructed *in* practice (not prior to or as a consequence of), identities emerge and are sustained in interactions, and literate practices are learned even as they are enacted over time. More specifically, a number of sociocultural researchers (e.g., Lave & Wenger, 1991; Rogoff, 1995) demonstrated through ethnographic research in different types of communities that learning of particular skills and of cultural norms and practices occurs in *communities of practice*, in which newcomers to the community are apprenticed into sets of

practices that develop the knowledge and expertise necessary to become *old-timers* in the community. As an individual becomes more knowledgeable, she or he also shifts in identity from novice to expert, from newcomer to old-timer, from outsider to member of the domain. Much of this knowledge development is implicit, with newcomers learning through repeated observation and scaffolded practice. Make no mistake, however, these theorists do not claim that all interactions between old-timers and newcomers (or masters and apprentices, experts and novices) must be implicit; within any interaction there is not only space but also necessity for explicit telling of information. The master tailor cannot afford to allow a novice to learn from the mistake of cutting material incorrectly and so provides explicit instructions to the novice on how to cut or carry out other tasks. In other words, when expediency is demanded, knowledge is passed on explicitly and directly. Still, in many cases *instruction* is implicit, sometimes carried out through modeling, sometimes through scaffolded attempts, but in all cases, knowledge—both factual and conceptual—develops in these engagements or participations in practice over time.

Despite the emphasis on learning as participation, sociocultural theories do not, however, posit knowledge as constructed anew in each moment of participation. As Cynthia Lewis and I argued in a recent volume:

Learning, however, also leaves a residue; it makes a mark on the participant. In that sense, learning draws from and constitutes “histories of participation” (Rogers, 2002) in other spaces, at other times, and with other people. Indeed, what makes learning so complex—and more than just participation—is that people bring their histories of participation to bear on each new act or moment of participating. Thus, learning can be conceived of as always being *situated in* participation, but not necessarily synonymous with or reduced to participation.

And learning obviously goes beyond the moment of participation to constitute a history and to shape a future act of participating. (Moje & Lewis, 2007, p. 16)

Ford and Forman (2006) argue in a similar vein that, “Practices have a history: They build on memories and products of the past and provide resources for the future” (p. 9). In other words, there are ideas, concepts, and memories that one draws upon to make sense of new ideas, concepts, and experiences.

Stevens and Hall (1998) offer another take on what learning leaves behind with their concept of *disciplined perception*:

If someone can sound like a doctor, he or she can also see like one, visually and physically inspecting bodies for signs that meet doctors' criteria of "illness" or "abnormality." If someone can look like an architect, he or she can also look at things like one. This sense of discipline demands that we carefully describe visual practices, both in relation to the tasks, artifacts, and settings where they are deployed and in relation to other embodied practices (e.g., pointing and gesturing) that support them. We think of disciplined perception as a performance genre - a set of specific forms of embodied action. Accordingly, cognition is a property of the entire body in action, a body shaped and maintained by participation in disciplinary (and other) communities. (p. 108)

Conceived of in this way, disciplined perception depends on and produces knowledge; it is developed over time and in apprenticeship with others who practice in the discipline. Stevens further elaborates on how disciplined perceptions are produced with his notion of a triadic formation of “accountable disciplinary knowledge” (Stevens et al., 2008, p. 357), in which accountable knowledge forms position students as certain types of members of the discipline (or

not) and thereby produce identities that further shape their ability to navigate the learning spaces of the discipline in order to access to accountable knowledge forms. The triadic is thus a relationship among knowledge-in-practice; identities-in-development; and navigations through learning spaces, contexts, and relationships. As Stevens et al. (2008) argue in their study of college students learning to be engineers:

Schools are places where successful disciplinary knowledge performances align with progressive navigation . . . Different students navigate differently through engineering, and these differences can be consequential not only for where they end up, but also for the duration of their undergraduate experience, the social networks they create, and the quality and substance of their identification with engineering. (p. 357)

These ideas, memories, discourses, and perceptions are brought forward into new interactions, thus raising the consequential question for formal education institutions of the implications for children and youth whose prior learning experiences did not afford them opportunities to develop knowledge-in-practice, with other people, over time. What residue of practice do they bring forward? How does the lack of learning residue influence future opportunities to learn?

The value of these learning theories is the emphasis they place on learning—and knowledge development—as a function of engagement in practices, embedded within communities of practice. The question that remains when working for and with these theories to design learning environments and practices, however, is that they reflect learning spaces vastly different from the typical high school classroom, and particularly the high school classrooms of disenfranchised, underserved, or impoverished communities. It is important to note that I am not

offering a critique of these theories, but rather a critique of the current contexts in which we expect large numbers of young people to learn, to develop disciplinary identities, practices, and knowledge. Most ethnographic studies of learning, for example, are situated in long-term, everyday interactions (e.g., Lave, 1993; Rogoff, 1990). These studies typically focused on relatively concrete tasks that can be observed and to which learners can be apprenticed, such as the money exchanges of street vendors (e.g., Carraher, Carraher, & Schliemann, 1985; Schliemann, 1984); the more abstract tasks of everyday life are learned over long-term participation in sustained interaction with the same experts. By contrast, formal schooling tends to focus on learning abstract concepts in short bursts. Most young people around the world attend secondary schools in fragmented blocks of time, removed from the actual world of practice in the subject matters they study.

In addition, studies of youth learning practices outside of school, such as my own study of youth in street gangs learning to write and read graffiti and tags (Moje, 2000) or studies of video and computer gaming described previously (Gee, 2007; Leander & Lovvorn, 2006), offer valuable implications for constructing learning environments that can draw in youth and support their knowledge development in practices. However, those studies assume both a motivation to engage and a sense of identity as one enters the learning space. Someone who wants to participate in a gang, for example, takes on a gang identity by attempting to engage in gang-related practices, such as dress, body movements, and graffiti writing/tagging (in my long-term study I demonstrated that gang “peewees” [young aspiring gang-connected youth] actually carried tagging notebooks where they practiced their literacy and art).

Not only are school classrooms rarely considered the “place to be” by youth, but they are also at times actively demotivating. What’s more, the identities that populate advanced subject-

matter courses in the secondary school—identities such as physicist, historian, author, or mathematician—are not particularly available to youth. The identities available via the popular culture are often caricatures of what the scientist or historian is.⁵ Consequently, it is important to ask how we translate the learning principles generated by these findings to the learning experiences of young people required to participate in state-mandated course work, young people who cannot pick and choose points of entry. Questions of motivation, desire, and engagement seem to represent a stumbling block for translating the principles of out-of-school learning into the principles of classroom learning. Whether gamers, taggers, dancers, or musicians (some of young people's most engaged pursuits outside of school), youth come of their own volition to the activity and can choose to leave when they wish. Many students do not come willingly to classrooms, and some are understandably resentful of being forced to attend, especially those in the upper grades who have experienced years of failure and frustration. Consequently, we should also look for analyses of the development of knowledge-in-practice principles in more formalized settings.

One place to turn for theories that more closely approximate formal secondary school learning might be studies conducted among university students learning in the professions. Stevens et al. (2008), for example, studied the development of knowledge-in-practice in learning to be an engineer and found that professional learning happens at the intersection of constructing knowledge, identifying with a domain, and navigating different pathways toward goals. Specifically, these engineering students developed engineering knowledge in multiple sources and practices, and the knowledge itself contributed to whether and how they identified as

⁵It is worth noting, however, that when reasonable—if not completely authentic or accurate—models of disciplinary/professional identities are offered via popular culture (e.g., forensic scientist), research with youth has documented an upswing in the numbers of youth claiming to be working toward such career goals (Moje, 2006).

engineering students and, ultimately, as engineers. Navigating in and out of different kinds of experiences was key to developing both the knowledge necessary to engage in the practices associated with those experiences and the identities needed for deep engagement in the practices. The engineering students saw themselves as future engineers (i.e., they sought engineer identities even upon entering the program), because they had developed the requisite knowledge needed both for their own identifications and for the recognition by others of their future engineer identities. They had also developed knowledge that allowed them to navigate multiple experiences, which in turn produced more knowledge and stronger (or not) identifications. Stevens et al. (2008) do not attempt to solve this chicken-and-egg puzzle (i.e., which came first, the knowledge or the identity?) but instead articulate a triadic relationship in which knowledge, identity, and navigations develop one another.

It is worth noting, however, that Stevens and colleagues acknowledge that many students who possess such knowledge either struggle or simply do not succeed in becoming professional engineers. One must ask, then, how well any of these theories intervene in the kind of learning situation most youth experience, and especially in disenfranchised learning contexts. Drawing from Gee's (2007) notion of *repair work* that gamers have to do in playing video games, what are the teaching practices that might support the repair work needed for youth who have been denied opportunities to learn and, as a result, walk into subject matter courses without the knowledge necessary to even begin to identify with the practices of the disciplines. If young people, for example, have rarely been encouraged to question or investigate in the academic disciplinary domains,⁶ and if they lack background knowledge, then where do they—and their teachers—begin?

⁶ It's worth using this rather cumbersome phrase, "academic disciplinary domains," because it is the case that many youth do question and investigate disciplinary phenomena—both social and natural science phenomena—in their

To this conceptualization, those interested in developing disciplinary literacy identities might add engagements with text as another key ingredient in the puzzle of how one develops knowledge and identities necessary both for successful navigations and for deep disciplinary learning of literacy and discourse. That is, we might argue that adolescent students learn in the disciplines by simultaneously navigating through various practices and texts of the disciplines, thus supporting the construction of knowledge-in-practice and identification with the discipline. Disciplinary texts, however, can be extremely challenging to the reader with little prior knowledge of the discipline, thus producing the conundrum mentioned previously. Even academically situated theories such as Stevens's work on the interrelationship of knowledge-identities-navigations assume relatively sophisticated levels of knowledge *and* the ability to navigate diverse domains of knowledge as one enters the domain.

Taken together, these theories and studies suggest, unsurprisingly, that learning in a disciplinary domain is a kind of "unlimited semiosis" (Witte, 1992) or spiraling progression (Vygotsky, 1986), in which opportunity to engage in practices affords opportunities to build knowledge, which in turn allows for the building of identifications and identities. The role of engagement in practices is, then, critical to building both knowledge and identities; if one precedes the other, it is, it seems logical to argue, that engagement in domain-specific practices generates knowledge and identities. Both calls for core knowledge transmission and calls for the recognition of identity, however, fail to acknowledge the critical role of practice in generating the knowledge necessary to identify and to learn more deeply. Perhaps more problematic is that although available theories often acknowledge the limitations of school context in providing

everyday lives (Moje et al., 2004; Stockdill & Moje, 2007), but they lack knowledge of or skill with the "academic" practices associated investigation in the institutional disciplinary domains.

opportunities for practice that can develop both knowledge and identities, they rarely speak to strategies for intervening in those contexts.

With the exception of some NLS projects situated in formal learning institutions (e.g., Collatos, Morrell, Nuno, & Lara, 2004; Morrell & Collatos, 2003; Stevens & Hall, 1998; Stevens et al., 2008; Street, 2009) and a number of school-based design experiments inspired by theories in the learning sciences (Cobb, Confrey, diSessa, Lehrer, & Schauble, 2003; Cobb, McClain, Lamberg, & Dean, 2003; Krajcik, Blumenfeld, Marx, Bass, & Fredricks, 1998), most of our theories do not offer specific teaching tools or practices to help teachers transcend—or even work within—the structural and sociocultural constraints (as well as potential affordances) posed by formal secondary school institutions in which youth are taught *en masse*.⁷ Nor do these theories distinguish as completely as they could between knowledge and practices learned from observation of concrete acts, and knowledge and practices that are more abstract. When and how are these abstractions learned? To what extent is the time involved in learning them a critically necessary component of the learning environment? In addition, many of these perspectives fail to account for the miseducation of many children and youth, which results in young people coming to new and advanced learning experiences without the requisite knowledge for learning concepts in deep and sophisticated ways. What's more, what do sociocultural and NLS studies conducted largely in contexts where individuals take up practices of their own volition tell us about how to engage children and youth who have no choice about and often—as a result of miseducation—no interest in even being in the room?

⁷ A number of scholars have worked on these issues at the elementary school level (Lee & Fradd, 1998; Warren, Ballenger, Ogonowski, Rosebery, & Hudicourt-Barnes, 2001)

Implications: Design and Pedagogical Principles

This analysis of the role of identities and knowledge in learning the discourse and literacies of different domains offers a number of implications. These implications extend not only to structures and practices of formal schooling, but also to how sociocultural and NLS theorists might consider designing future research agendas to take into consideration the challenging contexts of formal schooling.

One of the most notable differences between the contexts typically featured in sociocultural and NLS studies and the contexts of formal schooling, especially at the secondary levels, is in the amount of time dedicated to learning activities. In both elementary and secondary schools, students are treated to short doses of instruction (except for reading instruction at the lower grades, which in the U.S. is now taught in 90-minute to three-hour blocks focused on stories decontextualized from any content). These short bursts are exacerbated in secondary schools where students often move from class to class in 45-55 minute periods. “Block scheduling” is the norm in some secondary schools, so that some classes are 90-120 minutes in length, but they then are offered only every other day. In addition, even when students are in their blocked time periods, many teachers and students face regular interruptions by public address announcements and all-school assemblies for test preparation or athletic events (Moje, Sutherland, Solomon, & van de Kerkof, 2008). These students thus have little opportunity for sustained interaction with a community of practice and learning, and teachers struggle to connect learning activities and practices over time. Add to this issues of absenteeism often noted in urban U.S. schools, and the context appears radically different from the relatively stable and committed contexts studied in most sociocultural and NLS studies.

What's more, the sheer numbers of children and youth to be educated in formal learning institutions in the U.S. is astounding and makes for a radical departure from out-of-school contexts. One might argue that video and computer games—among the most profoundly powerful learning environments outside of school (Gee, 2007)—educate even larger numbers, as do fanfiction and other online sites (Shultz, 2009; Steinkuehler, Black, & Clinton, 2005), but these games and websites educate learners who want to be in the room, interfacing with them one at a time or bringing together groups of already-engaged youth in virtual environments. Teachers in school classrooms are responsible for educating large numbers of young people from different backgrounds, knowledge bases, skill levels, and motivations all at once and face to face. Secondary teachers may see as many as 180 of those very different youth in a single day, depending on the number of different class periods they are assigned to teach. Knowing those youth and being able to scaffold their learning, excite their interests, and connect to their lives is an enormous challenge. Building a *community* of these learners—people who sometimes dislike each other on principle—is an even greater challenge.

On a related note, unlike many out-of-school environments in which people routinely teach and learn, the reality of school learning is that youth do not all necessarily enter secondary school disciplinary classrooms excited to be learning, whether about the establishment and content of the Bill of Rights, why recombinant DNA is critical to our understanding of and raises ethical issues for the human genome, or how to derive the focus of a parabola. This potential mix of enthusiasm and disinterest walking into the context makes teaching disciplinary concepts at the secondary school level particularly challenging and requires that the contexts and tools of the contexts themselves be especially engaging. A quick look around most formal learning institutions, however, reveals less-than-motivating texts and contexts, underscoring another key

difference between the contexts of sociocultural and NLS studies and formal schooling. In many economically stressed communities, in fact, teachers and students lack even sustained basic resources, let alone the technologies for new literacy engagements.

Finally, we must consider the past miseducation of youth when thinking about how they might take on disciplinary identities, practices, and knowledge. Gee (2007) acknowledges the critical need for “repair work,” even among gamers, as one of the important learning principles he derived from his study of games as learning environments. And he’s absolutely right; repair is necessary for all learners because it isn’t possible for people to know *all* they need as they develop skill and knowledge in different domains. The challenge in formal schooling, however, is that all of the differences mentioned above exist and, as a result, young people proceed through school without learning much that is meaningful or that could be applied to new settings. Children and youth are rarely taught to ask questions, to seek information, to think for themselves (in fact, in some settings, questioning and pressing for understanding is discouraged). Repair work is needed, especially for least privileged kids; as noted previously, however, if extensive time is spent repairing kids’ lack of conceptual, factual, and pragmatic knowledge, opportunities to learn *new* knowledge are minimized.

Teaching Practices: A Call for New Research Agenda

Historical analyses of education in the U.S. suggest that none of the constraints highlighted above will be eliminated anytime soon (Cuban, 1986). Thus, it would be useful if NLS and other sociocultural theorists interested in enhancing the development of identities and knowledge necessary for learning the discourses and identities of multiple domains could theorize specific practices that might be useful under the actual conditions of schooling (while maintaining the need for structural changes). Drawing from analyses of gaming, it is clear that

young people are scaffolded in the process of searching for knowledge. Games provide tips to players, sometimes in the form of lexicons and clues, other times in the form of “cheat codes” produced by other groups, usually experienced players. Players also have access to a wide range of information sources--most critically, to one another. They work collaboratively to answer each other’s questions, with old-timers to the games giving tips to newcomers. Much of what Speyer and I did in the immigration unit I describe here parallels Gee’s analysis of games, in which youth were invited into an environment that allows them to construct the knowledge and develop the practices necessary to keep engaging in the practices of that environment.

A key difference, however, is that Gee also argues that the game makers offer players an identity; I argue that the identities they offer are important, but they are also taken up because the game players come to the game with knowledge and interest. It is not productive simply to offer identities in secondary school disciplinary learning without the knowledge and practices they embody and rely on. But it is also extremely difficult to do the kind of work that games and other out-of-school learning environments do for youth in our current classroom contexts. So what does it look like to develop knowledge-in-practice in classrooms? Classroom teaching can make some headway with such identity building; see, for example, my analysis of a high-school chemistry teacher who invited students to see themselves as scientists through her discourse about science and scientists (Moje, 1995). Merely offering identities, however, is meaningless without engagement in practices that allow for knowledge to be constructed in practice.

Teachers can employ many different forms of representation to construct knowledge of one concept—different genres (e.g., narrative, expository, poetics, music), different symbol systems (e.g., print, graphs, tables), and different semiotic tools (image, sound, and performance). Each

of these forms—now readily available through digital venues—can support the construction of knowledge necessary to access the abstract and dense print texts of the disciplines.

Still, this is complicated work. In reflecting on his work with high school history students learning to question the authority of classroom texts, Bain (2006) has argued that young people have to learn how to talk back to texts, and the opportunity to do so rarely happens in classroom. More to the point, if one does not identify with the practices of the discipline, and does not hold extensive knowledge in the discipline, then how does one talk back? In other words, knowledge, identities, and critical literacy skill develop iteratively; this development requires scaffolding and mediation by teachers who know the content well and understand the role that language and literate practice play in producing knowledge within it. Bain models such pedagogical practices in a high school history classroom, in which he taught students to “raise disciplined suspicions of the typical sources of scholastic authority” (p. 2082) by transforming their relationships to the texts of the classroom. He wrote:

Students’ habitual conceptions of and practices with textbooks held sway over my interventions and strategies aimed at raising their suspicions of the texts. The problem, I came to understand, was greater than sharpening their tools for critical reading, but rather involved a transformation in my students’ relationships to the books, to the historical content in the books, and to the authors who wrote them. (p. 2084)

What Bain implicates here is a transformation of identities, one that requires more than simply offering students the option to “act like historians,” a kind of classroom-based conception of the avatar of games and gaming. Toward that end, Bain wove together factual content knowledge in broad conceptual frames meaningful to historians. Moreover, he provided students

opportunities to think about, critique, and question that content via historical problems and questions, thus transforming the students' identities as passive recipients of information or activity in the class to identities as active investigators of claims to knowledge. For Bain, this was not a question of knowledge or identity, but rather an intertwined, iterative process:

“Indeed, I saw the conventional debate of ‘facts versus thinking skills’ as a false dichotomy; one needs content to employ thinking skills, and one could hardly learn facts without doing some thinking” (Bain, 2006, p. 2090).

Similarly, science and mathematics educators have drawn from work in the learning sciences to develop project-based approaches to learning (Blumenfeld et al., 1991; Davis & West, 2000; Marx et al., 2004; Marx, Blumenfeld, Krajcik, & Soloway, 1997; Moses & Cobb, 2001; West & Davis, 2004), with some remarkable results. As these authors illustrate, however, the work is challenging and incredibly difficult to move to a large scale. Moreover, fewer projects are available in English language arts and history/social studies and—in a converse of my argument about sociocultural and NLS studies—few project-based curriculum studies explicitly acknowledge the role of *identities* in this developing disciplinary knowledge. We need, then, more design experiments in the contexts where most young people are currently educated. We need these design experiments to explicate the particulars of approaches designed to engage youth and produce deep disciplinary practices, knowledge, and identities. And, in particular, we need the experimenters to write about the challenges of time, community building, repair work, and motivation and engagement they face in developing the knowledge and identities of the domains. With these design experiments conducted in the actual contexts of schooling in hand, we may be better able to theorize how to provide children and youth the

opportunities necessary to simultaneously engage in practices, build knowledge, and develop identities for deep domain learning.

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