
Lifting Off the Ground to Return Anew: Mediated Praxis, Transformative Learning, and Social Design Experiments

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Abstract

This article examines a praxis model of teacher education and advances a new method for engaging novice teachers in reflective practice and robust teacher learning. Social design experiments—cultural historical formations designed to promote transformative learning for adults and children—are organized around expansive notions of learning and mediated praxis and provide new tools and practices for envisioning new pedagogical arrangements, especially for students from nondominant communities. The authors examine one long-standing social design experiment, the UCLA UC Links/*Las Redes* partnership and the work of one exemplary novice teacher to illustrate the importance of mediated, reflective practices in helping apprentice teachers develop a coherent and orienting framework for teaching and learning that has both heuristic and explanatory power. The authors illustrate how cultural historical concepts of learning and development and situated practice become the means for university students to gain distance and reflect on the beliefs and practices that have informed their understandings of teaching and to “rise to the concrete” practices of learning jointly and resonantly.

Keywords

teacher learning, teacher preparation, cultural historical approaches to learning, mediated praxis

During the recent presidential election, we witnessed the increased politicization of approaches to teacher recruitment, preparation, and retention, as debates about what counts as teacher quality, high-quality teacher education programs, and pathways to teaching intensified. Despite the contentious debates in the public sphere, there remains consensus that teachers are the most influential factor in student learning and how learning gets organized on the ground (Bransford, Darling-Hammond, & LePage, 2005; Little, 2003; Walker, in press). Divergent views of teacher education notwithstanding, teachers who are better prepared are more self-confident and have better results with students than those teachers with little to no preparation (Darling-Hammond, 2000). However, the focus on high-stakes assessments in the education of students in the United States has led to the coupling of teacher effectiveness with students' performance on assessments that are not linked to robust learning. This emphasis has complicated efforts in teacher education that challenge a sole focus on outputs and argue for a praxis model of teacher preparation in which teacher learning is linked to pedagogical practices, student learning, and the contextual supports available and created. This article proposes an approach to teacher development that situates learning in its context of development, with attention to what

is learned, what tools are appropriated, and how teaching and learning are mediated in practice.

One of the long-standing challenges of preservice teacher education, at both the undergraduate and graduate level, has been the nonalignment often found between the theoretical and pedagogical tools appropriated in the university classroom and those at work in schools and classrooms. In our work (Gutiérrez, 2008a; Gutiérrez, Morales, & Martinez, 2009), we have tried to address the nonalignment and contradictions that are inherent in, as well as between, all activity systems (e.g., schools, teacher education programs, classrooms) by designing learning ecologies in the university and the community organized around a coherent set of principles of learning and development and multiple forms of mediation across both settings; of significance, these learning ecologies are co-created and grounded in the cultural historical practices of the communities involved. In line with a

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cultural historical approach to learning and development (Cole, 1996; Cole & Engeström, 1993; Engeström, 1987; Vygotsky, 1978), teacher learning is necessarily distributed and examined across a minimum of two activity systems in which teacher apprentices document children's learning trajectories *in situ*, as well as their own. By accounting for participants' shifts in participation in learning practices across time and the forms of mediation at work, students, teacher educators, and researchers can better understand the learners' sense-making processes, including how new theoretical and pedagogical tools are appropriated and employed.

Little (2002) has argued the importance of providing documentation of teachers' "trajectories of participation and practice over time" (p. 937). Following Little (2002, 2003); Artiles, Trent, Hoffman-Kipp, and Lopez-Torres (2000); and Rogoff (2003), we too believe that changes in learners' identities, forms of participation, and knowledge appropriated are indexed in practice. As we will elaborate later in this article, participating in what we term "social design experiments"—cultural historical formations developed with and for nondominant communities designed to promote transformative learning for adults and children—provides a new model for teacher learning.¹ Through the use of cognitive ethnographies (Hutchins, 2003; Williams, 2006), questions for consideration for course readings, a jointly authored data-driven research report, and a self-reflection paper, we also documented preservice students' appropriation of theoretical concepts of learning and development and content knowledge in pedagogical practices with children from nondominant communities.

Grounded in expansive notions of learning and mediated praxis fundamental to a transformative education for students from nondominant communities, the social design experiment provides persistent opportunities for reflection and examination of informal theories developed over the course of participants' experiences as students and teachers in apprenticeship. Such reflection is necessary for teachers to develop a coherent and orienting framework for teaching and learning that has both heuristic and explanatory power. We hope to illustrate how cultural historical concepts of learning and development supported "lift offs" (Vossoughi, n.d.) in which university students could see anew the teaching and learning processes at work.

Social Design Experiments: Some Context

The literature on collaborative action research raises important concerns regarding the power relations between university researchers and local practitioners, as well as between teacher educators and apprentice teachers and the institutions they traverse. These include the tendency for researchers' questions and ways of knowing to dominate the process of inquiry, for practitioners to *act* and researchers to *observe* and interpret practitioners' actions in the field and in

the classroom. As Erickson (2006) pointed out, the danger of such noninterference—coupled with the privileged view often afforded the "researcher"—is that the "local work of daily social action is described by the ethnographer as if it were effortless, taking place in a universe from which social gravity is absent" (p. 243). As educational researchers and teacher educators, participating in the practices we study—stepping into the messiness, pressures, and joy of pedagogical work—opens our interpretive sensibilities to the tremendous effort and struggle this work involves. Erickson suggested that by sharing in the action and cognition of practitioners, that is, "studying side by side," we might develop more honest accounts of cultural production and reproduction that move beyond portraits of social life as either weightless or overdetermined (Erickson, 2006, p. 255). In this way, a humanist approach to research may offer dignified, nuanced portraits of social actors; the historical constraints we encounter; and the spaces available for history making, improvisation, and change in the way we conceive of teaching students from nondominant communities, as well as their potential.

At the same time, highlighting the importance of genuine participation in local action need not preclude the kinds of keen observation and distanced reflection characteristic of more well-known qualitative approaches to research. Indeed, the researcher as a collaborative, reflective "observant participant" may help make visible the practices, meanings, and contradictions that often become invisible to those closest to the action. In this sense, "neither the outsider nor the insider is granted immaculate perception" (Erickson, as cited in Cochran-Smith & Lytle, 1993, p. ix). This reflexivity suggests the need for dialogue between emic and etic perspectives and raises the following questions: How and when might university researchers and teacher educators become resources for reflecting on and developing local practice? And how can research become the context for reflecting on and developing teaching and learning practices that are oriented toward social justice and powerful forms of learning for both teachers and students?

Inspired by the principles and historical impetus of action research (Noffke, 1997), in this article we discuss the emergence of a new form of research: the social design experiment that seeks to create and study change (Gutiérrez, 2008a; Gutiérrez, Hunter, & Arzubiaga, 2009). Organized around equity-oriented and robust learning principles, social design experiments are oriented toward transformative ends through mutual relations of exchange. Grounded in a humanist approach to research and a cultural historical approach to learning and development (Cole, 1996; Cole & Engeström, 1993), this interventionist research maintains that change in the individual involves change in the social situation itself (Engeström, 2008b). By understanding the individual and her or his cultural means in relation to her or his contexts of development, this approach contests the tendency to invoke the Cartesian divide between the individual and the social.

Given the history of the “experiment” in positivist traditions, it is important to ask, Why the term *social design experiment*? In our work, we advance a different vision of social change in which the term *experiment* is reclaimed and reframed as open and creative, in ways that create spaces to experiment pedagogically, to design collective Third Spaces that heighten the potential for deep learning to occur and for the development of powerful literacies that facilitate social change (Gutiérrez, 2008a). From this perspective, change necessarily and fundamentally includes transformation of the researcher; her or his methods, tools, and dispositions; as well as the relations with participants in the focal activity and community. We have used the term *social design experiment* in ways similar to Engeström’s “change laboratory” (Engeström, 2004; Gutiérrez, Hunter, et al., 2009) to build on and draw some important distinctions from “design experiments” employed in education (Brown, 1992; Collins, 1992). In contrast to linear and top-down notions of design experiments, social design experiments are open systems that are subject to revision, disruptions, and contradictions and are co-designed; moreover, social design experiments here are concerned with social consequences and transformative potential (Engeström, 2004).²

In many ways, the social design experiment is a hybrid methodology that builds on venerable traditions of democratizing inquiry in which research is no longer the property of the more privileged researcher but rather is a co-construction with stakeholder participants. A distinguishing feature, however, is that here the researcher as an involved participant can play an important role in the organization of mediated praxis that propels the potential for change in the participants; their practices; and their social contexts of development, including the university. As a democratizing form of inquiry, social design experiments are political projects organized around the development of an equity-oriented, humanist research agenda. As we advance this form of research, we believe it is important to highlight the principles that orient and help organize the work, always mindful of the need to situate the project in ways that privilege the standpoint of nondominant communities to whom the learning project is oriented.

Design as re-mediating activity. The social design experiment adds an important dimension to teacher learning and teacher education research, as it strategically *designs* robust learning environments with transformative potential for teacher educators, teacher apprentices and their students, and the institutions in which they participate. The object of university and community/school/teachers’ work is to engage in joint activity to redesign the learning ecology so that ongoing opportunities for all participants to engage in robust learning practices are the norm; where interrogating historical, structural, institutional, and sociocultural contradictions is viewed as generative and as an expansive form of learning.

Cultural historical views of learning and development have provided new approaches to extending students’ learning that have been employed to rethink education and to imagine and design new ecologies for teaching and learning. We employ the cultural-historical concept of *re-mediation* (Cole & Griffin, 1983; Gutiérrez, Morales, et al., 2009) as an organizing design principle that serves a starting point for reimagining what teaching and learning can look like.

In contrast to the traditional remedial approaches to instruction previously addressed, the notion of re-mediation—with its focus on the sociohistorical influences on students’ learning and the context of their development—involves a more robust notion of learning and thus disrupts the ideology of pathology linked with most approaches to remediation. Instead of emphasizing basic skills and problems as located in the individual, re-mediation involves a reorganization of the entire ecology for learning and “a shift in the way that mediating devices regulate coordination with the environment” (Cole & Griffin, 1983, p. 70). Development here involves “systems reorganization” in which designing for deep learning requires a “social system’s reorganization” (Cole & Griffin, 1983, p. 73), where multiple forms of mediation are in play. The concept of re-mediation constitutes a framework for the development of rich learning ecologies, in which all students can expand their repertoires of practice and rupture the encapsulating practices of schooling (Engeström, 1991).

Contradictions. Stress points are inherent in all activity systems; teacher education is no different. The social design experiment, by design, anticipates contradiction within and across activity systems. One central design principle privileges understanding and addressing the contradictions that constrain opportunities to develop powerful forms of learning or that give rise to inequitable learning environments (Gutiérrez, 2008a). However, the social design experiment must also serve as a context of critique where resisting, challenging, and questioning the contradictions and their solutions serve as openings for learning.

Consistent with a cultural historical activity theoretic approach (Engeström, 1987), this attention to contradictions challenges the tendency toward simpler, less nuanced explanations of the practices of students from nondominant communities, as well as beliefs around long-standing dichotomies in educational research, for example, quantitative and interpretive approaches, the researcher/researched, school and home, and dominant and nondominant communities (Gutiérrez, 2006). It also attempts to work the contradictions that emerge from conceiving, studying, and implementing social change as either top-down or as bottom-up projects that minimize the link between local and global policies and practices, as well as proximal and distal influences. In this way, social design experiments attempt to work within the dichotomies of top-down and bottom-up projects by

understanding the limits, constraints, and resources of the local through an historical lens.

Historicity. Social design experiments are grounded in historicized understandings of the normative practices under examination. This focus is critical if an equity-oriented, humanist approach to inquiry is to ensue. As institutions, schools have a long history of de-privileging and de-historicizing their practices and the practices of non-dominant communities in particular. In contrast, our work helping students develop robust literacies involves focused attention on students' histories of involvement in literacy practices in schools and elsewhere, rather than on their linguistic deficiencies as defining practices (Gutiérrez, 2007).

A historicized approach could also focus on a school's history of practices in a particular ecology. This project would entail an archaeological approach to understanding the sedimented layers of practices that have resulted from years of mandated policies, local and individual instantiations, distal and proximal ideologies, and curricular practices. Our own empirical work in schools reveals that teachers, administrators, and relevant stakeholders are rarely provided the opportunity to influence and reflect on mandated curricular and administrative policies and practices, to examine their role in the change process, or to understand the social and cognitive consequences of policies and practices and even less opportunity to make sense of how the constellation of policies and practices that organize their work operate in relation to one another or function collectively toward productive change (Crosland & Gutiérrez, 2003; Gutiérrez, 1992; Gutiérrez, Asato, Pacheco, & Olson, 2004).

Consistent with a historicizing perspective, social design experiments work within dynamic and processual notions of culture that aim at documenting both the regularity and variance of participants' practices within and across communities. In contrast to approaches that privilege deficit explanations for human behavior, we take a humanizing approach that focuses on people's history of involvement with the valued practices of their communities and the routine activities of everyday life, for example, people's history of involvement with the institution of school and its practices (Gutiérrez & Rogoff, 2003).

The mediating role of culture in activity (e.g., cultural practices) provides a window to help participants examine held assumptions about communities, their practices, and their participants. Indeed, complexifying or demystifying normative conceptions of cultural communities and their practices is a core activity of a social design experiment. Thus, this approach accounts for within and across subgroup differences in ways that do not essentialize or define groups such as English learners and cultural communities monolithically and fundamentally attends to how issues of race, ethnicity, language, mobility, culture, gender, and power are addressed in the inquiry project.

Equity. First-order questions of social design experiments ask, How is equity accounted for across the inquiry project? Is equity locally defined and experienced? Ensuring that the intervention benefits the very community for which it was intended involves documenting the social and cognitive consequences for participants across each phase of the intervention and over the course of one's work and participation. This form of accountability would trace how equity has been conceptualized and addressed from multiple vantage points, from inception and implementation to outcome and representation of the focal activity of the inquiry; that is, developing equity trails of the experiment (Gutiérrez, 2008b). Within this perspective, transformation is ongoing and necessarily elevated as the object of the inquiry project. Studying and designing for change also require dealing with ambiguity, anticipating the emergence of new problems; the generation of new questions; and the ongoing re-mediation of practices, tools, and habits of mind. In short, the work of social design experiments is necessarily a work in progress, as in the moving horizon of zones of proximal development (Vygotsky, 1978).

We draw on these principles to illustrate an example of a social design experiment: a transformative university/school educational project with which we have been involved for nearly 15 years. Following the historical genetic method of a Vygotskian approach, the social design experiment focuses on tracing the development of some function and its processes of mediation as a heuristic for understanding change, including future trajectories of change (Vygotsky, 1978). This attention to the genesis of a practice helps us answer the questions, How did we get here? And where might we go? We use the example of a university-school partnership to illustrate the power of intellectual work in nondominant communities when it is collaborative and heteroglossic. As we will show, when intellectual work is situated in the historical particularities of the community, thinking historically can change one's relationship with observed contradictions, including how to re-mediate in ways that foster shifts in perspective—a collective imagining of “the world as it could be” (Cole & Griffin, 1983; Gutiérrez, Hunter, et al., 2009). Attention to the genesis of a practice also motivates us to attend to key antecedent work that has been instrumental to the concept of the social design experiment.

The Social Design Experiment as Change Laboratory

The Change Laboratory (Engeström, 2007), an activity theoretic theory and method for understanding and mediating change in workplaces, has significant relevance for our work in educational contexts. Within this approach, participants engage in new work practices and developmental dialogues that promote “intensive, deep transformations and continuous

incremental improvement” (Engeström, 2008a, p. 8). In this interventionist approach, rich representational tools are used to facilitate reflection and action: a *mirror* surface used to examine participants’ experiences, problems, and potential solutions; a *model/vision* surface for analyzing the activity and its inner contradictions; and a third surface reserved for *ideas and tools*—intermediate ideas and solutions to be experimented with in practice (Engeström, 2008a, pp. 9-10). Like all tools, these artifacts gain meaning or come alive in the dialogue between participants, including the researcher whose outsider perspective may serve as a resource, helping to make the familiar strange. This “strangefying” role is particularly important to making visible the routinized practices of work and educational spaces, bringing to the surface potential contradictions between these practices and the objects or desired outcomes of activity. In the social design experiment we elaborate in this article, as in the Change Laboratory method, the researcher himself or herself becomes a part of the toolkit utilized by participants and helps to design artifact-rich activity settings that mediate the development of new practices for reflection, debate, and transformative learning.

We argue here that the social design experiment, a form of Change Laboratory, can serve as a resource for the development of robust systems of teacher education. For example, highlighting the fundamentally mediated nature of reflection can complicate the taken-for-granted split between theory and practice—a disconnect commonly lamented in the context of teacher education. Whereas academic concepts and theories may be criticized for their distance from local meanings and realities (“What does this have to do with practice?”), responses that reject or circumscribe the role of theory should also be problematized in a number of ways. First, to suggest that there could be any practice without theory masks the concepts and assumptions that guide our practice, whether or not we are fully aware of them. Thus, reflecting on our own practice through mediating tools provides the opportunity to name the theories underlying our practice—creating the distance to decide if we are comfortable with our own assumptions, their histories, and their implications (Gutiérrez, 2006; Gutiérrez & Orellana, 2006). Second, when we become conscious of the theory-driven nature of practice, we may become more deliberate in our use of theory as a tool for organization, decision making, and reflection.

As with any practice, expanding our understanding of what it is we are doing extends our repertoires of practice. As we will illustrate shortly, in the context of teacher education, the researcher/educator can employ a range of mediational artifacts that promote reflection and re-mediation of novice teachers’ assumptions and practices. Notably, the cognitive ethnography, a central tool in our work with novice teachers, becomes a site for sense making, synthesis, reflection, and mediated praxis and helps to refute long-held dichotomies often taken up in teacher education: theory/practice, university/community, and researcher/practitioner. Furthermore,

working to generate a conceptual vocabulary for pedagogical practice allows us to name, recognize, and therefore make more conscious decisions about the moment-to-moment organization of learning. In this way, we *make* theory a powerful tool for practice rather than assuming it to be so. This practice opens theory to appropriation and revision based on the realities of local practice.

In its very spatial configuration, the social design experiment embodies this generative relationship between theory and practice in which the movement between reflection and action incites individual and institutional forms of change. Engeström (2008a) describes this simultaneous “separation and embeddedness” as crucial to solving complex problems:

It [the Lab] is located in the workplace as close to the shop floor as possible. . . . The boundaries between Laboratory and practice are made permeable by encouraging movement across them. Practitioners may use the Laboratory space for reflection outside the scheduled sessions. During the sessions, they may go out of the Laboratory space to check the reality on the shop floor. Representations of work are brought into the laboratory from work and out of the laboratory onto the walls of the actual workspace. (p. 11)

This spatial organization reflects the kinds of distancing necessary to look anew at everyday practices—to develop examined assumptions—and, at the same time, offers a material model of the fundamentally *mediated* nature of human consciousness emphasized by Vygotsky (1978). As Jerome Bruner (2002) described, human cognition is preconditioned by our ability to extricate ourselves from the immediacy of environmental inputs. Language and other mediating artifacts, including meaningful stories and scripts, as Bruner argued, create this distance—continuously lifting us off of the world in order to experience it anew (Cole & Levitin, 2000). However, it is not the lifting off itself that constitutes consciousness. Simply moving between shop floor and an empty laboratory space or university classroom and school site may not facilitate the kind of deep reflection necessary for creating equity-oriented and meaningful change in work and educational environments. Rather, it is the artifact-rich environment—the material, conceptual, and human tools made available for and constructed within the laboratory—that *mediates* the process of reflection and action.

These tools are co-constructed by practitioners and university researchers, an approach that builds on Vygotsky’s method of dual stimulation. “In these experiments, the subject is put in a structured situation where a problem exists and the subject is provided with *active guidance* [italics added] towards the construction of a new means to solve the problem (Engeström, 2008a, p. 2). Here, active guidance is

not offered by researchers/educators simply because they are the “researchers” in the setting. Rather, their ability to guide emerges from experience conducting and thinking deeply about the kind of work in which reflection and dialogue are facilitated and new communicative practices and forms of action among local participants are generated. At the same time, local practitioners have a privileged view of “the way things work” on the ground. Thus, the relationship between university researcher and practitioners is not free of asymmetry. But this asymmetry—born of differing histories with elements of learning activity—becomes a resource for analyzing and constructing potential solutions together. Thus, the social organization of social design experiments privileges joint activity among participants with expertise in distinct practices as fundamental to movement, learning, and change.

The Contexts of Development: UC Links/*Las Redes* After-School, Computer-Mediated Project and UCLA Education 194

In 1995, a consortium of professors across seven of the University of California (UC) campuses orchestrated a collective project for public school students from nondominant communities to mediate the effects of a state proposition, Proposition 209, designed to roll back civil rights and affirmative action gains through colorblind policies. Organized around cultural historical approaches to learning, leading activities designed to incite engagement, motivation, and sustained interaction around learning (Griffin & Cole, 1984) and the construct of re-mediation (Cole & Griffin, 1983; Gutiérrez, Morales, et al., 2009), new partnerships were forged with UC faculty, undergraduate students, and community and school personnel to create new learning ecologies for public school children and undergraduate and graduate students interested in teaching and learning.

These social design experiments were grounded in a well-established theoretical approach and program of research and design (Cole, 1996; Vasquez, 2003) yet instantiated locally to address the goals and needs of the local community. UCLA *Las Redes*, located in a port-of-entry community in Lennox, an unincorporated area of Los Angeles, is one such experiment. Its 14-year partnership with Moffett Elementary School in the Lennox School District; its principal, Ms. Jo Ann Isken; and school personnel has been sustained by a range of strong relationships, principally the school/university collaboration on a three-quarter sequence of courses (Education 194A, B, & C) offered to students participating in the Education Studies Minor program and the Teacher Education Program. Seminars focusing on “Literacy, Culture, and Human Development,” “Gender, Culture, and Human Development,” and “Technology, Culture, and Human Development,” and an accompanying field

ethnography practicum (*Las Redes*) constitute the Education 194 courses. Students provide consent to allow us to study their learning and development through their participation in course activities. In what follows, we examine the social organization of student learning in this context as a potential model for teacher education, as we have used this model in both undergraduate and teacher education programs.

Like the Change Laboratory, the UC Links/*Las Redes* program is organized around the notion of a *mediated* praxis characterized by the close relationship between studying and organizing for change. In our view, this approach may help us rethink some of the binaries common in teacher education and classroom practice, between teacher education and educational and policy research: theory/practice, individual/social, university/community. For us, changes in practice necessarily involve changes in the ways we *think about* practice. Furthermore, individual shifts in thinking and participation influence (and are influenced by) changes in the activity itself.

In the UC Links/*Las Redes* program, for example, we are centrally concerned with the relationships *between* the thinking and doing of educational practice at our after-school club and in our university-based course. Students in the 194 course study cultural historical theories of learning and human development while practicing these theories with elementary age students at the *Las Redes* after-school program. Specifically, university students³ work to develop children’s problem-solving and mathematical skills and college-going literacies through participation in meaningful literate, technological, and mathematical practices. Following each visit to the site, university students detail their moment-to-moment interaction with the children, as they engage the theory and concepts presented in the 194 course. Their joint engagement with computer games, board games, and letter writing activities with our bilingual wizard *El Maga* becomes the focus of their six- to eight-page cognitive ethnographies. (See the appendix.) As Hutchins (2003) has noted, cognitive ethnographies focus attention on interactions between the material, cognitive, and social world, that is, distributing attention across cognition, social interaction, and mediating artifacts—what Hutchins called the local cognitive ecology. Through fine-grained ethnographic detailing of the learning at work in situated activity, knowledge of cognitive processes is grounded, and understandings of student learning become more expansive.

Engaging university students in Vygotskian approaches to learning and the mediating role of culture provides them a tool for challenging deficit views of nondominant students and their communities and for participating in educational ecologies organized around the very theories they are studying. Consistent with this theoretical approach, issues of educational equity along the lines of race, class, gender, and language play a prominent role in readings, written assignments, and classroom discussions within the university course and their work at site.

Organizing the dialogic conversation. In the following section, we focus on one of the primary forms of assistance offered university students—dialogic conversation between students and their instructors/teaching assistants that ensue from the reading of university students’ weekly cognitive ethnographies and responses to guiding questions about course readings. We analyze shifts in one preservice teacher’s thinking and participation over the course of a quarter to make visible the relationship between documenting and organizing learning for cognitive and social change. This example also highlights the importance of saturating the learning environment with mediational tools to promote meaningful learning. Students in the 194 course are organizing learning for children at site—helping them participate in the thinking and doing of tasks (e.g., how to play a game and how to think about a game), as 194 instructors are organizing learning for students—helping them participate in the thinking and doing of educational practice at site. This relationship between the pedagogy *experienced* in teacher education and the pedagogical tools students themselves are working to develop is a rich but largely untapped resource for learning.

As the following example of a dialogical exchange illustrates, critical commentaries on students’ ethnographies create opportunities for joint reflection of experiences at *Las Redes*, the after-school site, offering tools for students to think about their own thinking. This cognitive ethnographic field note was written following the class’s collective reading of Carol Lee’s article on intellectual reasoning in a high school literature course (Lee, 2001) and during Megan’s (the university student’s) second visit to the site. The underlined portions represent the teaching assistant’s (TA’s) comments⁴ on Megan’s field notes, in which Megan describes the process of playing Jenga (a tower-building game that involves attention to balance, spatial configuration, and symmetry) with a young elementary student at the after-school site.

Excerpt 1

*She [student at site] placed one block at a time on the tower and steadied it with each placement. She used two hands, had her face close to the tower, and looked as though she were concentrating very hard. I have always used a different technique, which I did simultaneously. I take three blocks in one hand and put them on all at the same time. **While setting up our second Jenga game, I noticed that she copied my technique.** (OC: I did that as an experiment. Learning via imitation!) Yes . . . consider revisiting Vygotsky’s comments on this in the chapter on Learning & Development Her first move was taking a block from the top-center portion of the tower that was situated between the two edge blocks. It slid right out for her. She did not laugh*

when Susan and I laughed at ourselves trying so hard not to knock the tower over. Her second and third blocks came from the bottom and then a side position in the middle, respectively. I asked her in the middle of the game, “How do you know which one to pick?” (OC: I was trying to be like the teacher in Lee’s article by asking her to think about her thinking.) Excellent—so we, as teachers, may also be learning by imitation/appropriation 😊 She thought for a second and then told me that she picks them based on visual cues. She said, “It looks. They’re kind of open.” She giggled a little bit and then shrugged her shoulders. (FN2, p. 6, 10/31/07)

In this exchange, conceptualizing and organizing learning come together in a number of important ways. First, Megan deliberately offers the student another strategy for building the Jenga tower by doing it at the same time, noticing the ways the young student imitates her technique. She then poses a question, “How do you know which one to pick?” aimed at helping the student engage in metareflective thinking about her strategies. Her observer comment (OC), “I was trying to be like the teacher in Lee’s article,” brings this approach into contact with course readings and examples. The fact that the TA’s comments appear directly after Megan’s observer comments highlights the dialogic space these comments open up for TA’s to engage directly with students’ thinking about events at site. By using the word *imitation*, the TA uses her comments to build a bridge between Megan’s understanding of the student’s learning and her understanding of her own learning. At the same time, including the word *appropriation*, the process of reinventing or making a strategy or practice one’s own, represents an attempt to push Megan’s thinking towards a more complex understanding of “imitation” within cultural historical approaches to learning; here, the assistance serves as an important moment in the process of learning rather than its object. Such moves also serve to frame university students’ own *experience* of assistance in the course and serve as a resource to draw upon in assisting Moffett students at site. Here, the multiple layers of mediation at work in this activity system, in the classroom, and in the field have the potential to interact in powerful ways. In this case, both Megan and the TA consciously appropriate the tools Lee offers for helping students become aware of their intellectual reasoning, in ways that expand their relationship with the tools involved in the practice of playing Jenga or the practices of teaching and learning. As a social design experiment, this program organizes the opportunity for students to engage in a mediated praxis.

Furthermore, this example illustrates the ways changes in the individual necessarily influence changes in the larger activity. Employing a new tool appropriated from Lee’s article, Megan reveals a new way of viewing and relating to students at *Las Redes* when she asks, “How do you know

which one to pick?" There is an important assumption embedded in her question: that the young student is highly capable of thinking about her strategies in complex ways. In this way, equity-oriented challenges to deficit thinking are not only advanced in the university course, they are *practiced* in face-to-face interaction with children at the after-school club. Assistance in the form of new ideas and ways of organizing learning offered by Lee's article and the TA's comments help to mediate new social relationships between university and elementary students at *Las Redes* and new opportunities for learning.

The benefit of employing a constellation of mediational tools is illustrated in Megan's shifting understandings of the concept of assistance, as exhibited in her sequence of cognitive ethnographies. The following examples (2.1-2.4) trace Megan's discussion of assistance and her definition of the zone of proximal development (a core concept in the course) across four sets of field notes. They are taken from the "Game-Task Level Summary" section of the field notes, where Education 194 students are asked to summarize their interaction with the students at site, focusing on the kinds of assistance offered and the levels a child worked through to complete a task. These levels—beginner, good, expert—correspond to task cards or adventure guides that accompany various gaming activities at site. In the absence of a task card, 194 students are asked to think creatively about the level that would best describe the child's current expertise. The final excerpt (2.4) also includes a portion from Megan's reflection/analysis section where students reflect on the day's events and begin drawing analytic connections to course readings and concepts. Bold portions of the text are meant to draw the reader's attention to Megan's shifting definitions of "beginner" and "good" levels, terms that index her emergent understanding of the relationship between mediation and learning over time.

Excerpt 2.1

*Taboo was the only game that Richard and Lawrence played for more than 30 seconds. The game did not have an adventure guide, but I would say they were playing at the Beginner level, pushing toward good. **Nice I say Beginner because Tara and I had to explain the rules and give guidance quite often . . . (OC: I think that in order for them to achieve the Good level, according to my own imagined rubric, they would have to start the game without explanation or reminders about the goal. Also, they would need less assistance in giving clues to their partner. Nice explanation—also consider how they might start a game with your assistance/explanation and then perhaps shift to a good level.*** (FN1, p. 6, 10/10/07)

Excerpt 2.2

*Laura was a Beginner with Guess Who. I thought that she may have advanced to the next level after having achieved understanding of which faces to knock down, but on second thought, I think her conceptual understanding of how to actually win the game keeps her at the Beginner level. **I think that if she can win the game legitimately, see an opponent do so, as well, and also be able to explain why each one won, she will move on to Good. Interesting! Why do you think these might be important things to master?** I gave her assistance in our first game by checking for her understanding. With Susan, she only needed prompting twice, so she clearly made improvements. **If I could give her a Beginner-and-a-half level, I would.*** (FN2, p. 7-8, 10/31/07)

Excerpt 2.3

I think that Richard was playing Jenga at the Beginner level, but started making his way toward the Good level as he needed less and less of my assistance. Of course, at first, he needed my assistance in every way: placing the blocks in the correct pattern to build the tower; understanding that the object is to take the blocks out and then stack them on top, not to build the tower from the middle; knowing to use only one hand; and taking blocks only from the third row and below. Soon procedural knowledge of the rules became more like implicit memories for him. Well put! In Vygotskian language, perhaps this relates to the process of internalizing and appropriating strategies/tools that first emerge in social interaction. By the last game, I could tell he was not working so hard to remember all the rules and all the details about how to pull a block out of the tower. Something new to him became his actual level of development after only an hour. Nice! I think that if we play again, he might resort back to using two hands, for example, but with assistance, he will reach the Good level very quickly. Good, in my opinion, would mean knowing the rules and being able to follow them and explain them. Explaining them is important in ensuring that he has learned the concept of the game, and is not simply copying his opponent. (FN3, p. 8, 11/06/07)

Excerpt 2.4

Richard was playing Taboo today at the Beginner level. Through interaction with him and giving him

assistance, I believe that I saw his potential. **I think that he could play at the Good level if he would allow himself to receive help.** Rather than listen to suggestions or discuss his ideas with Tara or Susan when having me guess a word, he was more inclined to give up and move on to a new card. He was hoping that he would find an easier one that he could do independently. **A Good player, in my opinion, would not play the game without assistance, but would accept assistance without Richard's brand of stubbornness.** (OC: I imagine that the stubbornness I witnessed was a defense mechanism. It is easier to be stubborn and difficult than it is to admit weakness or ignorance.) These are important reflections which may speak again to this issue of not wanting to appear as if one needs assistance . . . where might this be coming from? What might we do in these situations? Perhaps one approach may be to let the student know you are there if he wants to try and do it together? Or perhaps there's a way to organize the game so that two people are on a team to try to get a third person to guess? Just suggestions ☺ (FN4, p. 6, 11/14/07)

REFLECTION/ANALYSIS

It is interesting to me that Richard's transition to a new level of play in Taboo is purely psychological. I cannot say that a "better" player is less insecure, but that is essentially what I said in my game-task level summary. I am not sure if what I am saying is accurate. Richard's ability to see past his insecurities and accept assistance is growth not easily documented by game level increases. Well put By denying help and choosing easier cards, ones with words he could independently describe, James was fighting to continue playing at his actual level of development. With assistance, he would feel what it is like to play Taboo consistently successfully. Our assistance would provide him with the sensation of his potential. (FN4, p. 6-7, 11/14/07)

Here, we draw on Megan's own language and thinking to examine her evolving understanding of learning and its social organization at *Las Redes*. In Excerpt 2.1, Megan begins by defining the "good" level as students accomplishing a task with limited assistance or no assistance at all. This approach to assistance continues in Excerpt 2.2, in which Megan begins to redefine "good" in terms of the student's participation in and understandings of the task. This qualitative understanding of the "good" level persists into Field Note 3 (Excerpt 2.3), where Megan suggests that Richard may reach this level very quickly "with assistance"—thus shifting away from an understanding of student development as *only* evidenced through independent performance of a task. Finally, in her fourth field note

(Excerpt 2.4), Megan identifies the acceptance of assistance as a definitional characteristic of a "good" player, viewing Richard's unwillingness to accept assistance as an impediment to his learning. Interestingly, in her reflection/analysis section, Megan suggests that Richard's willingness to accept help would represent learning in itself, growth "*not easily documented by game level increases.*" Megan therefore moves from working to understand the game-task levels to analyzing the potential limits of the levels themselves as tools for documenting learning. How did this shift happen?

In the first example, learning is characterized by the absence of assistance. Megan began with a summary of assistance and students' task level that reflected a linear and literal application of Vygotsky's zone of proximal development—an interpretation in which children move from assisted performance (*potential* development) to independent performance (*new actual* development). Importantly, Megan's subsequent attention to the possible role of assistance in reaching the "good level" (Excerpt 2.3) reflects the TA comments at the end of Excerpt 2.1. Similarly, her elaboration of the importance of children's explaining the rules of a game is a direct response to the TA's question in Excerpt 2.2. Here, joint, mediated reflection helped to expand Megan's understanding of assistance and also exemplifies *layered* mediation. Like the students at *Las Redes*, Megan's development is not marked by the absence of the TA's assistance. Rather, the TA's comments in the dialogic exchange are appropriated over time, as pedagogical attention shifts to the new problems and questions that arise for Megan in practice. Indeed, the emergence of new problems (recognizing the potentially limited nature of beginner, good, expert levels) represents an important sign of Megan's shifting understandings of and participation in teaching and learning at site. By Field Note 4 (Excerpt 2.4), Megan defines assistance as offering students the experience of what it feels like to play at the "good" level—"the sensation of their potential." New ways of thinking about learning influence the ways Megan works to organize learning for students at *Las Redes*.

Furthermore, when Megan comments on the importance of Richard's willingness to accept assistance (Excerpt 2.4), she herself embodies this willingness through the tentative, questioning tone of her writing. The influence of laminated forms of mediation provided Megan is further exemplified in her thinking about and engaging in the risk of "face threat." As Erickson et al. (2007) argued, "To try to learn something new with a teacher is to display one's self to the teacher as incompletely competent. . . . Taking the risk of face threat, then, is necessary if one is to attempt a new skill" (pp. 11-12). In rethinking the comments she had just written in her game-task level summary, Megan writes, "I am not sure if what I'm saying is accurate," opening the space to think aloud in ways that invite assistance and to write in ways that *constitute*

rather than simply display understanding. In a performance-centric environment heavily focused on grades and assessment, how often do university students feel they have the space to question and reflect on their own assumptions and to say, “I don’t know” or “I’m not sure”? It is in this sense that individual shifts in activity also reorganize the activity itself by pushing the boundaries of what constitutes undergraduate and teacher education. Megan’s writing is oriented toward complex thinking rather than performance (what Kleinsasser, 2000, referred to as “writing to learn”), as further illustrated in her response to one of our course readings, Freire and Macedo’s (1987) *Literacy: Reading the Word and the World*. Here, student and TA work together to interpret Freire’s words in relation to our own reflective processes.

Excerpt 3

One quote, toward the end of this chapter, that confuses me is, “This more critical reading of the prior, less critical reading of the world enables them to understand their indigence differently from the fatalistic way they sometimes view injustice.” I think that this means that by reading the world, rather than learning words as separate from their own existence, students will have the opportunity to understand their extreme level of poverty as something not ultimately determined, but as something changeable. Yes—Freire is concerned with shifting our view of the social world away from naturalized understandings (the inevitability of reality) to more social understandings that suggest the transformable nature of reality. Here, he also seems to be pointing to ‘reading the world’ as including critical ‘re-readings’ of our own understandings. I chose this quote because I do not understand it, and because it seems important. The paragraph that follows discusses a “critical reading of reality,” which I think is crucial for social justice. Students must not consider their current situations, their reality, as fixed. Education’s purpose is not to transmit the existing culture, but to provide teachers (as sociocultural mediators) who will draw out of students their unique forms of thinking and funds of knowledge in order to help students make a difference in their own lives. Teachers are there to let students feel what it is like to transform what they have read of their realities into words on paper, thereby enacting a zone of proximal development for each child. Excellent discussion! This last paragraph made me excited ☺ as I was thinking about how socio-cultural ‘readings’ of learning and human development led to the creation of alternative spaces such as Las Redes (i.e. the transformation of reality)—food for continued thought! (GQ7, p. 2, 11/13/07)

Similar to Megan’s use of Lee’s article in Excerpt 1, theory becomes a tool for new ways of thinking about and participating in educational activity. Megan interprets Freire’s quote in her own words, drawing on his ideas to articulate her understanding of the purpose of education and the role of teachers as sociocultural mediators. Of significance, Megan’s emergent articulations of culture and social justice follow her expressions of confusion and doubt. These are key moments in the learning process that are often ignored or underutilized. Yet, as in Megan’s case, we learn the value of creating space for students’ “I don’t knows” and see such think-alouds as invitations for assistance, and doorways to more complex understandings and analyses. Indeed, Megan moves from expressing a lack of understanding to making a strong, declarative statement about the purpose of education—one that reflects a new understanding of a teacher’s mediating role as tied to equity-oriented views of culture and learning.

Stretching Towards the Future

Social design experiments, as exemplified at *Las Redes*, organize learning for the future and toward the possible and, in doing so, help university students envision the educational enterprise and the role of teacher learning as inextricably linked. The role such “anticipated future models” can play in shaping present activity becomes evident in one of Megan’s final cognitive ethnographies, where she reflects on and intentionally reorganizes her interactions with Eric, a student at *Las Redes*. Here, Megan begins to appropriate the reflexive dialogue between instructors and students (including the kinds of self-reflective questions encouraged by the instructional team), engaging in an internal dialogue that makes her own activity an object of critical reflection and gives life to new forms of participation, teaching and learning.

Excerpt 4

My first impression of Eric was that he is a troublemaker. I know that labeling kids like that is a mortal sin of educating children, but I find it hard to avoid. It is something I need to work on, but I think that I made a step toward my own development with Eric on Monday. By ignoring my assumption (as best as I could), I approached Eric as if he were not petting people, jumping, screaming, and talking to me with a rude tone. I decided to talk to him like an adult, to respect him instead of belittle him by saying, “No! Stop! Don’t do that! Come here! etc.” I am not trying to sound high and mighty here. I honestly tried to do these things so that Eric would not see me as another adult that will treat him like a troublemaker. His warming to me made me think that it worked. These are

really nice reflections. They get at how moving away from our assumptions and constructions of students (as troublemakers, for example) may require not only trying to 'think' differently but acting differently towards the students in ways that may also create the space for the student to participate differently—to be a different side of herself—as you did so nicely here. This seems to highlight the importance of seeing students' actions not as inherent characteristics but as context or activity specific . . .

In short, Eric is not a troublemaker per se; he just needed an activity (and organizers of that activity) that could take him into consideration. Well put Diaz and Flores write that a teacher acts as a link between a child's "sociocultural experiences at home and school." I wish I would have thought of a way to bridge what goes on in Eric's home to the discussion of an American tradition [Thanksgiving]. Two more theorists I thought of during my interactions with Eric are Marx and Vygotsky, simply because Eric is a prime example of a social being. ***I think that Eric's positive interactions with Susan and me came out of a social interaction that brought out the best in him. By "the best," I mean his actual level of development, as well as a push toward his potential. Beautifully put!!*** (FN5, p. 7-8, 11/19/07)

Megan begins with an honest expression of her initial categorization of Eric as a "troublemaker." She then describes her attempt to "ignore her own assumption" by acting towards Eric in ways that challenge this categorization and organizing contexts that created the space for him to move differently, to be a different self. Rather than maintaining a deficit view of Eric, Megan reflects on her initial categorization as problematic, "Something I need to work on." Megan's willingness to name her initial assumption and to question that assumption opens the space to think and move differently, a space too often eclipsed by the pressures to *know* and the fear of appearing *wrong*. Megan reflects on Eric's history with the practices at *Las Redes* and how she can reorganize learning activity in ways that "take him into consideration." Furthermore, Megan analyzed the role of teachers as "sociocultural mediators" in Excerpt 3 and then reflects on what it means to practice this role, thinking about ways to connect Eric's own cultural practices to the discussion of Thanksgiving at site. She thereby engages in a kind of conceptual and ethical stretching, giving life to new relationships with Eric, course concepts and, perhaps, with herself as teacher/mediator. In this sense, creating the context for students to reflect candidly on and grapple with their own assumptions and practices opens the space for contradictions to emerge as objects of analysis and potential engines of change.

The laminated nature of mediation is also reflected in this example: As instructors, we could have attributed Megan's views to deficit perspectives of students at site and to students from nondominant communities in general. In our view, such responses risk closing the space for the kinds of movement evident in Megan's field notes. Taking a cue from Megan, we believe that by suspending these categorizations, genuinely engaging and pushing students to reflect on their assumptions, we seek to support the kinds of thinking that foster the creative development of humanizing practice. At the same time, Megan's practice becomes a way of *knowing* that helps her build theory about human beings and their learning as being fundamentally *social*. As Megan's references to Diaz and Flores, Marx, and Vygotsky suggest, theory and research are not only developmental tools, they also have the potential to become tools for humanization and powerful learning (Darling-Hammond et al., 2008).

Thus, social design experiments are an argument for the inseparability of change at individual and social levels. Whereas some versions of social justice-oriented teacher education may discount the above example as a form of social change (prioritizing more explicit or structural forms of activism), we wish to argue for new ways of seeing and conceptualizing change that are sustainable. In doing so, we locate social design experiments within a history of nonviolent movements for social change. Historically, these movements have insisted on the inseparability of means and ends, understanding that both dehumanization and humanization are experienced locally. As Brazilian educator and theorist Augusto Boal (1995) wrote,

The smallest cells of social organization (the couple, the family, the neighborhood, the school, the office, the factory, etc.) and equally the smallest incidents of our social life (an accident at the corner of the street, the checking of identity papers in the metro, a visit to the doctor, etc.) contain all the moral and political values of a society, all its structures of domination and power, all its mechanisms of oppression . . . when we talk about a strictly individual case, we are also talking about the generality of similar cases and we are talking about the society in which this particular case can occur. (p. 40)

As Megan's discussion of her interaction with Eric reflects, social design experiments may ultimately offer a space to analyze the relationships between the "smallest cells of social organization" and the moral and political structures of society, and to practice the kinds of local change that emerge from and concretize our collective imagination of education as it could be. At their best, social design experiments like UC Links/*Las Redes* have the potential to become lived arguments for the possible, what Wartofsky referred to as

tertiary artifacts—“imaginative artifacts that color the way we see the ‘actual’ world, providing a tool for changing current practice” (Cole, 1996, p. 121). Megan’s final self-reflection paper illustrates this possibility, suggesting that our experiential encounters with alternative educational arrangements offer new ways of seeing and acting, tools fit for the everyday, moment to moment work of social change.

Excerpt 5

I learned about the ideal circumstances under which someone might learn. . . . All in all, I was truly inspired by the theory presented in this class. On a couple occasions I was even brought to tears. My frustration lies in my new understanding of what really goes on in America’s classrooms and how I can possibly change it. I feel that being armed with theory gives me the joyful/scary responsibility of practicing it. (Self-reflection, 12/11/07)

Tracing Megan’s learning trajectory in relation to her history of involvement in the practices of her schools and community, especially her work in Education 194, provides a way to document her learning, her shifts in participation in class and at site, and new ways of thinking about herself as a learner across contexts. Of significance, the cognitive ethnographies (Hutchins, 2003; Williams, 2006) that document her thinking in her own words provide a context to account for the emergence of her new stance toward theory, her own role in the learning process, and her interactions and relationships with students from nondominant communities.

Organizing for the Future: Implications for Teacher Education

We present the social design experiment not as a utopian method for “doing” teacher education but as a tool for imagining and designing robust learning ecologies. As is the case in any activity system, social design experiments are not free of tension and contradiction and require ongoing reflection and re-mediation. In the present case, the *Las Redes*/194 course instructional team members continually encounter contradictions that must be addressed. As they work to create a different educational ethos and practice, they also have to remain accountable to institutional demands, such as assigning students letter grades and preparing teachers for the realities of classroom life.

Yet, at their core, the course and field practicum are experimental in nature—living the contradictions of university and school policies and practices and working to find the relative space within institutional settings to play with and to push on what is possible pedagogically. Part of this educational imagination involves a reframing of old tools toward new ends; tools (such as field notes or cognitive ethnographies) that

have been traditionally used for research take on new meaning as pedagogical tools for students’ reflection, thinking, learning, and development. And the *Las Redes*/194 course addresses head-on the double bind of teacher education: studying and appropriating theory and tools in a university context and making sense of those tools in school contexts organized around a different set of learning principles and practices.

It is in this sense that the teaching and learning practices of the UC Links/*Las Redes* project aim to re-mediate the university itself (Gutiérrez, Hunter, et al., 2009), creating pockets of activity that offer participants the experience of education *as it could be*, in ways that change education as it is today. Indeed, social design experiments may be characterized as occupying and working the productive tension between present and possible social realities.

In our view, creating contexts where activity is guided by a mediated praxis aimed at the possible opens opportunities for equity-oriented and respectful learning to manifest concretely in the everyday social relations among human beings. Mediated praxis promotes expansive forms of learning in which individual and collective zones of proximal developments coalesce, as individual participants “act a head taller than themselves” in ways that lift the activity towards its future, emerging form. As Engeström (2007) has noted,

People put themselves into imagined, simulated and real situations that require personal engagement in actions with material objects and artifacts (including other human beings) that follow the logic of an anticipated or designed future model of the activity. *They experience the future.* (p. 37)

We hope our deliberate attempts to create space for students’ honest self-reflections and vulnerable forms of writing, to use theory in practice, and to document the cumulative effects of joint activity and mediation will help generate new resources for lifting the practice of teacher education towards its potential. We use Megan’s case to illustrate the transformative potential of a social design experiment. By “lifting off the ground” to reflect and distance herself through new theoretical understandings and documented experience, Megan returns anew in a recursive and expansive cycle of learning (Engeström, 1987). What is important to us is that Megan’s case is not the exception but rather exemplifies the remarkable social and cognitive shifts experienced by the novice teachers who have participated in this humanist-oriented, social design experiment over the past 14 years. Designing for collective transformation, what we have termed Third Spaces (Gutiérrez, 2008a), stimulates the development of networks of support and tools for individuals and institutions to learn.

We argue that social design experiments organized around expansive forms of learning, powerful literacies, dialogic

exchange, situated practice, and evidence-based observations of children's learning can help promote instrumental uses of theory, through which novice teachers can develop and sustain thoughtful, robust, and informed understandings of learning, and come to value learning over teaching and joint activity over individual learning arrangements. Following Suvorov

(1983), reflection and mediated praxis allow learners to gain the distance from the world as it is—to lift off the ground to see teaching and learning from a different vantage point, to grapple with the tensions between newly appropriated ideas and tools and their own assumptions and practices, and to use theory as a sense-making tool in situated practice.

Appendix

Cognitive Ethnography Outline

Fieldnote (Cognitive Ethnography) Outline

NAME:	Your first and last name
SITE:	XXXX School (MES) List program observed
DATE:	Month/Day/Year
ENSEMBLE:	(List all the children and Amigas/os you worked with even casually, or observed). Include names, ages, and grades.
ACTIVITIES:	Games and Levels for the day (Activities for the observed time)
LETTERS:	All to whom children wrote to <i>El Maga</i>
PROJECTS:	Adventure Guide development; multimedia presentations (List project in which students are involved)

I. GENERAL SITE OBSERVATIONS

What do you notice about the school as you come in; what is the feeling of the computer room, the general attitude of the children as a whole; what other activities within the school may be affecting the environment or atmosphere of the 5th Dimension activity. What are the feelings of the other UCLA students; what types of interactions/activities are taking place between the undergraduates (UGs) before the site activities begin (i.e., the ride to site, your conversations, etc.).

II. NARRATIVE

Concentrate on describing the interaction between you and the child(ren) (add more information about the environment around you, as ACCURATELY and THOUGHTFULLY as you can. Reflect on what went on at site, how you interacted with the child(ren), how they interacted with you, and how they interacted with each other. Be sure to note how you and the child(ren) came to engage in a specific activity, what their reaction was to the activity, and what difficulties or problems they encountered when dealing with the game. *PAY close attention to dialogue, language use, and strategies the child(ren) utilized or attended to during the course of the game.* Remember that negative instances or ways the interaction break down, or misunderstandings about the game are just as interesting as positive instances; in fact, they can be more informative when we try to understand what supports or constrains learning. *BE SURE to write your opinions and subjective assessments as OBSERVER COMMENTS (OC), because they are your ideas, assumptions, or hunches—inferences or reasons about why the events unfolded in a particular way.*

III. GAME-TASK LEVEL SUMMARY

Write a SHORT summary of the interaction. Include all the levels a child worked through to complete a task. That is, if a child completes the Beginner, Good, or Expert level of an ADVENTURE GUIDE, then break down and describe the interactions at each level: what the child was doing and what they HAD TO DO to complete the level; note any problems they may have encountered. *BE SURE to include the kind of help YOU gave to get them throughout a particular level or through the processes of game play. Also include any assistance they sought or were given by peers.*

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Appendix (continued)

IV. REFLECTION/ANALYSIS

This is your opportunity to reflect on the day's events and to make sense of them. Reflection notes are similar to observer comments and, in fact, your OCs should be useful to you in writing this section. *This section is extremely important because it is the beginning of your analysis and will help your subsequent joint work with the children; these reflections will also help you when you write your final paper.* Reflections should also include how you think your experiences are related to the concepts you are learning in class and how these theoretical tools influence or inform your analysis of ongoing learning activities, the processes of learning, etc. Reflection also provides an opportunity to begin to raise issues and questions you might have with the readings (i.e., learning experiences for which the readings do not account). Your analysis of practice through theory and theory through practice are not necessarily easy tasks but can be rewarding and serve as the source of very productive meaning-making and insight. *Reflection sections should end with two or more questions that you want to consider when you return to site.* Questions at the end of the cognitive ethnography field notes will help focus your attention for your subsequent work with the children.

List of Possible Aspects to Attend to in the Narrative Section of CE Fieldnotes

"Task" Performance

Child(ren)'s understanding and interaction with a game

- a) Child(ren) had no difficulty with the game; immediately gets into the game and can solve the game task; describe how s/he solves the presented problem. Does s/he solve it in the same way you would or differently?
- b) Child(ren) has some difficulty; describe it: how did he or she go about solving it; how did you structure the situation for them; what kind of understanding did they have of the problem? Afterwards, were the children capable of solving the problem by themselves or did you need to still have an active role in structuring the situation continuously?
- c) Can you identify the types of strategies they used in solving the problem (e.g., trial and error, testing a particular idea systematically; testing a curious hypothesis that as far as you could tell didn't have much to do with the way the problem is structured)?
- d) Did they change strategies because of your help? Did they also become independent in solving the problem? Did they get a good grasp?
- e) Facilitation or hindrance caused by another child. How did you handle it? When hindrance was created, what did you do to facilitate the interaction?

One way to get to child(ren)'s understanding of a problem is to document how they might try to teach another child about it, or even teach you.

If this happened, explain how they did accomplish this. Did you notice anything interesting in their understanding? How much did you have to intervene or to ask specific questions?

Social Context of Interaction

Interaction between you and child(ren).

What role did you assume? Explain.

- a) Told children that you didn't know the game and asked them to explain it to you.
- b) Role of teacher (watching the child[ren] do something and only interfere when something goes wrong; you don't participate in the game)
- c) Role of big-sib (you play together with the child; try to enter their world and lead them through in a subtle way; you create enough space for them to have control of the activity; but you interfere at crucial moments to shift the direction; your control is subtle and you redirect what they do, rather than tell them what to do)

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Appendix (continued)

Interaction between the children

- a) Sequential turn-taking (a game each)
- b) Turn-taking within a game
- c) Collaboration (sharing a keyboard, sharing responsibilities, sharing the goal, etc.)
- d) Joint activity, that is, the ensemble is not just working side by side but together toward a common goal; another way to think about this is “shared practice”
- e) Competitive

Fifth Dimension Context

Goal Formation in child(ren)'s activity

- a) Child is immediately goal-directed; has already formed the goal about what she or he wants to do in a game, for the day, etc. and carries it out.
- b) Child is a bit lost and needs your direction to form a goal for his or her activity; you negotiate the goal together.
- c) Child wants to do something totally independent of the Fifth Dimension activities or the game and he or she tries several means to accomplish this; you try to redirect, but may succeed or not. Why?

Degree to which the rules of the Fifth Dimension are followed

- a) Does the child need to be reminded of the rules of the Fifth Dimension?
- b) Does he/she follow them spontaneously, and even tell you (teach you or correct you about them)?
- c) Does s/he try to avoid, even challenge the rules?

Children's conception of El Maga

- a) Interested and curious about El Maga (they ask a lot of questions and will ask them not only when reading or writing e-mail, but even in the middle of playing a game)
- b) Get into the make-believe of El Maga (goes along with the ideas put forth by the UGs and act as if El Maga exists for the moment, at least while in the Fifth Dimension)
- c) Resist the whole idea about El Maga because the Wizard is seen as a means for the adults to control the children

Reading and Writing Letters

- a) Do they read their letters from El Maga? Help them attend to the questions that the letters from the Wizard or from other kids are addressing. Can they answer these questions? If not, help them state it in their answer what they didn't understand and what kind of information they need to better understand El Maga's response.
- b) About writing letters: Ask questions to help make their responses explicit. What questions did you ask?

Computer Interaction

As you are observing and interacting with the children during game play, take notes about the “talk,” actions, and activity around and with the computer. Observe how the children work with the keyboard, use of the mouse, boot games, flip disks, and make comments about particular pieces of the machine. Note how much help they ask for when trying to get a game started and record any questions or discussions that arise about the computer and its role in the 5th Dimension.

Suggestions for Successful Field Note Writing

1. Try to write your field notes immediately after your visit to site. Although they are not due until 10 p.m. the next night, you will be surprised to find how much detail *fades* away in a very short period of time!

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Appendix (continued)

2. As you write your field notes, try not to restrain yourself, (i.e., do not filter or select what should be reported or what should not). As you transcribe your notes, include all that you remember from your time at site with as much detail as possible.
3. As much as possible, try to follow the field note format outline. Begin by trying to note how site “felt” that day; what you perceived to be the social organization of *Las Redes* while you were there. Try to describe your role in the social system at site. In your focused observation section, take a closer look at the interactions that you were a part of during your visit. Try to note any cognitive, linguistic, and or social strategies used by the child/children. It is important to characterize these strategies with great detail.
4. Be very careful to place your reflections on and interactions of the day’s events in the final section of your notes. In the first two sections, you will carefully describe what happened (behaviors, talk, actions, events). This description will become part of your empirical data! *In the third section, make inferences, draw conclusions, and make reasoned connections.* This is your ongoing analysis section. This section may include anything you have learned, discovered, questions you have about the site, challenges or concerns you might have, etc. Also, this section **should** include a discussion of the explicit connections between what you are doing and the content of the course readings and class discussions. In other words, this is the section in which you make connections between theory and practice.
5. We cannot overemphasize the importance of being explicit when writing your field notes. Remember, if you offer a conclusion or opinion, you must also offer evidence that helps explain your observation. You have probably heard the expression, “Show me, don’t tell me” right? Your goal is to write thoughtful and evidence-based field notes that will help you better understand your own learning, as well as the student’s.

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Notes

1. We use the term *nondominant* instead of the more commonly used terms *minority*, *diverse*, and *students of color* as we believe the term better captures power differentials experienced by people by virtue of their membership in particular cultural communities.
2. We acknowledge that there is a growing number of researchers conceiving of design experiments from cultural historical and

transformative perspectives. See Bell, Lewenstein, Shouse, and Feder (2009) and the work of Michael Cole and Yrjo Engeström as notable examples.

3. We use the terms *university students* and *novice/apprentice teachers* interchangeably.
4. One of the authors was Megan’s TA during this quarter, helping teach the course with Dr. Jolynn Asato.

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