

Chapter 9: Computer-Mediated Learning and Young Latino/a Students' Developing Expertise—Carmen M. Martínez-Roldán & Peter Smagorinsky

It was Thursday, and a group of 16 second-grade Latino/a students had just finished playing online games in the Amigos Clase Mágica [Friends' Magic Classroom], a new after-school computer-mediated program at their elementary school. Diana, one of the undergraduate students from the university providing assistance to the children, wrote in her field notes about Oscar, the boy she had been mentoring for two months, and added an observer's comment (OC) with her reflection:

He learned how to measure the distance and speed of [*sic*] which he was going so that he could stop at the right time and not have the bicycle turn over and lose a life. He also learned which keys to use to make the bicycle go forward; I figured it would be the left arrow key but it was the down arrow key so I learned something from him even though we both were new to the game. (OC: I was surprised that he was able to pick up on this kind of stuff faster than me but I think it has to do with the newer generations and that their world is surrounded by technology more than my generation.) (Field notes, April 22, 2010)

In the excerpt above, 20-year old Diana, an Intern in the Bilingual Professional Development Service (PDS) Program at the University of Texas-Austin, reflected with surprise about how fast Oscar, an eight-year-old student, was learning (all names are pseudonyms). Diana was one of the 31 university students who participated in the after-school program created by the first author¹ for bilingual students to support their reading and their digital literacy learning. The program simultaneously provided the interns with face-to-face interactions with bilingual learners and opportunities to conduct informal assessments. The after-school program was inspired by La Clase Mágica (LCM) developed to equip bilingual youths between the ages of 3 and 16 with the academic, cultural, and social skills that they need to meet and exceed state educational standards (Vásquez, 2003).

On this day, Oscar was playing the online game Neopets and surprised Diana by discovering the right key to engage with a part of the game. Diana

¹ The Texas Center for Education Policy (TCEP) led by Angela Valenzuela served as an incubator for the creation of this project.

found herself learning something from this youngster in an educational context in which she had been considered the more expert. She acknowledged that there might be a gap between these second-grade Latino/a children and her generation, one characterized by the distinction between *digital natives* who grow up exposed to new technologies and *digital immigrants* who have not (Prensky, 2001).

The opening excerpt was typical of the dynamics involved in the interns and students' collaborative computer use during the last two weeks of the program. Like Oscar, other students in the program were developing expertise in some computer games, surprising the interns, who found themselves learning from the students. The line between expert and learner got blurred for many of the children and the interns participating in the program, raising questions about the nature of the mediation in the zone of proximal development for both children and interns. Using Vygotsky's (1978, 1987) concept of mediation, and drawing on New Literacy Studies (The New London Group, 1996) and related scholarship on multimodality (e.g., John-Steiner, 1987, 1995; Smagorinsky, 1995a, 2001), we address the ways in which the learning of digital literacies was mediated in this after-school program for Latino/a students.

Cultural-Historical Factors in Teaching and Learning

Mediation in the Zone of Proximal Development

Vygotsky's (1978) cultural-historical theory of learning and development provides a useful framework for examining children's learning as they interact with different people and different tools and artifacts, such as computer games in joint activity with adults and peers. Two themes relevant to this study are Vygotsky's argument that individuals' higher mental processes have their origins in social processes and cultural practices, and that mental processes can be understood only if observers understand the cultural-historical nature of the tools and signs that mediate them (Wertsch, 1985). Vygotsky (1978) described interactions between children and adults or more capable peers as central to children's learning and development. His concept of mediation in the zone of proximal development highlights such a role: "what a child can do with assistance today she will be able to do by herself tomorrow" (p. 87).

Teachers and adults undoubtedly have a crucial role as mediators of children's learning, yet differential levels of digital expertise across generations complicate conventional notions of who is teaching whom what. Although there is an agreement on the crucial role teachers and adults play,

the nature of the assistance and mediation has been the subject of debate, and researchers are still trying to understand how much assistance and under which circumstances this assistance supports students' learning (Smagorinsky, 1995b). The research we report in this chapter lends credence to sociocultural constructivist conceptions of teaching and learning relationships that allow for considerable agency on the part of learners-as-teachers. Dyson's (1990) rejection of the "scaffolding" metaphor in favor of a "weaving" metaphor illustrates this more interactive, mutually instructive conception of the ZPD, one that we found at work in the Amigos Clase Mágica.

Rejecting reductionist interpretations of the concept of mediation in the ZPD, Moll and Whitmore (1993) underscore that the ZPD involves "the child engaged in collaborative activity within a specific social (discourse) environment" (p. 20). The ZPD is thus not what Wilhelm, Baker, and Dube (2001) describe as a "cognitive region, which lies just beyond what the child can do alone. Anything that the child can learn with the assistance and support of a teacher, peers, and the instructional environment is said to lie within the ZPD" (p. 16). It is, rather, an interrelated set of social contexts that are deeply rooted in cultural and historical traditions, practices, and artifacts (Moll, 1990). ZPDs thus lack the sort of containment asserted by Wilhelm et al. and involve more of the "weaving" implied by the etymology of the term "context" (Cole, 1996) and recognized by Dyson (1990). Moll and Whitmore (1993) propose that the key to understanding learning in classroom contexts is to attend to the social transactions that make up classroom life: "Within this analysis the focus of study is on the sociocultural system within which children learn, with the understanding that this system is mutually and actively created by teachers and students. What we propose is a 'collective' zone of proximal development" (p. 20).

The notion of a collective zone of proximal development is related to the concept of distributed cognition (Salomon, 1993), since knowledge is shared among participants in sociocultural activity and manifested in the artifacts of human production (Rogoff, 2003), each with unique affordances and constraints available both through the material form of the artifacts themselves and the social practices that guide action in particular settings (Wertsch, 1991). Individuals, for instance, would find it materially difficult to eat a thin soup with a fork, and be socially discouraged from combing their hair with a fork at a formal dinner, possible though it might be.

Moreover, an apt definition of the ZPD applied to classroom practices for Moll and Whitmore (1993) must include the active child *appropriating* and *developing* new mediational means for learning. Shifting the emphasis

from the adult/more-competent-peer and child dyad to what an individual can accomplish through participation in joint sociocultural activity opens up possibilities to understand the kinds of learning and dynamics that occur in computer-mediated environments in which the participants play games and use digital resources. Although gaps between those assigned different formal roles such as teacher and student might remain superficially in place, these gaps can mask other ways in which task-and-setting appropriate knowledge can be distributed more equitably across relationships.

This sociocultural perspective enables researchers to study people's use and transformation of cultural tools and technologies and their involvement and participation in the social, discursive, and cultural practices of their families and communities. Such practices are not fixed, but rather change in relation to the protean dynamics of interpersonal and intrapersonal action and the teleological goals toward which action is directed in relation to task, setting, and participant factors (Rogoff, 2003; Smagorinsky, 2001; Wertsch, 2000). Two contexts that have experienced much change in the last decades involve literacy and play, which have prompted the "digital turn" in literacy research. Next we review briefly some studies about learning in computer-mediated environments.

Learning in After-School Programs via Computer Games

Play, schooling, and work have been identified within the cultural-historical perspective as three leading activities mediating people's development. "In play," Vygotsky (1966/1933) maintains, "a child is always above his average age, above his daily behavior; in play it is as though he were a head taller than himself" (p. 25). It is important to note that the notion of "play" cannot be equated with "having fun" from the perspective we are taking via Vygotsky. Rather, play involves experimentation, playing with ideas, testing boundaries, trying out possibilities, and engaging in other forms of open-ended activity that might involve failure rather than fun. Because, however, the stakes of the experimental activity tend to be low—there is no external punishment for failure—an unsuccessful playful effort can benefit the learner's knowledge by helping to inform the next attempt and the development of a conception of the activity.

Recognizing the role of play activity in children's development, Griffin and Cole (1984) examined elementary children's learning in the computer-mediated after-school program of the Fifth Dimension. They developed the Fifth Dimension "as a device to organize the children's activities with microcomputers without imposing a schoollike [seismic] control structure" (p.

56) of the sort that establishes a top-down teaching-and-learning relationship as opposed to the more reciprocal notion of the ZPD we endorse in this chapter. The program combined play and education to support children who were facing academic challenges at school. The children played different games, solved problems, and communicated online with the Wizard, a magical electronic entity whose role was played by a Fifth Dimension adult acting as part of the fantasy world of the program.

Playing different computer games in the Fifth Dimension created ZPDs for the children in which they could collaboratively organize themselves and perform beyond themselves given that they chose to fully enter into the activities. Their participation in this computer-mediated environment supported children's development of creative analyses and problem solving. Unfortunately, the team working on the Fifth Dimension had tried to entice bilingual students to join the program with no positive results. This concern prompted some initial adaptations that finally led to the innovation of La Clase Mágica (Vásquez, 2003).

La Clase Mágica expanded the Fifth Dimension to include early childhood, adolescent, and adult participants with a special interest in the children's families. Undergraduate students, called Amigos and Amigas, work with the children to help them move through a series of prearranged computer and online communication activities: "the students and the system of artifacts (e.g., maze, task, and constitution) prompt children to imagine themselves in a journey through a bilingual-bicultural fantasy world ruled by the magical electronic pal known as *El Maga*" (Vásquez, 2003, p. 8), the counterpart of the Wizard in the Fifth Dimension. Within the complex activity system of LCM, the cultural relevance of the program became one of the most salient meditational means of student learning. Students' language and culture were integrated in all aspects of the program including the meditational artifact of the maze that included the games the children could navigate (Vásquez, 1993).

Digital Literacies

New Literacy Studies conceive of "reading" as an act undertaken with texts comprised of any configuration of signs into which a meaning potential may be built (Kress & van Leeuwen, 2006; Street, 2003; cf. Smagorinsky, 2001). Youths become parts of discourse communities that employ specialized languages as they develop interest and expertise in certain topics out of school (Gee, 2007b; Shaffer, 2006). Moreover, Gee (2007a) has proposed that a variety of learning principles are built into good video

games, especially in “epistemic” video games in which students learn the “ways of knowing” of a community of practice or profession (Shaffer, 2006).

Electronic gaming is but one area of scholarly inquiry that has developed since the mid-1990s in the wake of widespread access to the World Wide Web and its successors. Digital spaces afford youths the opportunity to remix the worlds that they inherit into new configurations that suit their needs in shaping their identities in the malleable worlds that they find online (Knobel & Lankshear, 2008). These spaces, including those available at the Amigos Clase Mágica, stand in stark contrast to the learning environments of school, which are remarkably durable in perpetuating an authoritarian culture that both teachers and students find difficult to change (Smagorinsky, 2010).

Context of the After-School Program

The after-school program was inspired by La Clase Mágica (Vásquez, 2003), including the procedure by which an undergraduate supports a student’s interaction with computer games based on instructions provided on a Task Card to play a game at the beginning, intermediate or expert level. The games are included in a maze that the students need to follow, and there is a fantasy entity (El Maga, comparable to the Fifth Dimension’s Wizard) who communicates with the children through email. The undergraduates working with the child write field notes describing the students’ learning and their own. The Amigos Clase Mágica adapted most of these components, and a lesson plan was added to provide the interns with some direction.

Twice a week for two months, 31 interns taking a bilingual reading class with the first author met with second graders for an hour after the school day. Half of the interns worked with the children on Wednesdays and the other half on Thursdays. The sessions formally opened with the reading of a children’s book. The interns read to or with the children a Latino/a literature text in English or Spanish. The selection of the literature responded to the nature of the game the students were going to play. For example, the day when the students used the website *Maya and Miguel* (<http://www.scholastic.com/mayaandmiguel/>), the interns chose books such as *El sancocho del sábado* (Saturday sancocho) (Torres, 1995) and *The empanadas that abuela made/ Las empanadas que hacía la abuela* (Gonzales Bertrand, 2003) to make connections with the game *Cocina con abuela* (Cooking with grandma) within the website.

The interns could also select books based on students’ interests. For instance, during the first week Antonia learned that César had some favorite wrestlers and watched wrestling shows in Spanish and English. For the next meeting, she brought to the session the book *Lucha libre: The man in the*

silver mask: A bilingual cuento (Garza, 2007) instead of the one she had previously chosen. After 15 minutes of reading, the students used the computers to play a game.

The games were listed in a maze or *laberinto*. Each pair of undergraduates working with the same child presented a different game or website to the undergraduate class (Figure 1 shows the maze created with the undergraduates) and prepared a weekly lesson plan and a task card with instructions to the children to engage with the games.

Insert Figure 1 about here

The weekly plan included the Texas Essential Knowledge and Skills (TEKS; see <http://www.tea.state.tx.us/index2.aspx?id=6148>) components that could be supported through the game; a description of the game explaining how it could be considered an epistemic game; information regarding whether the game encouraged problem solving, creativity, biliteracy, or identity development; and an anticipation of what sorts of identities the game seemed to support. The plan also included the titles of the two children's books used in the Reading component that week and criteria for selecting the texts. The interns were told that the most important factor was to be responsive to the children's needs.

The sessions ended with the children writing to El Maga and reading its emails and a short debriefing as a class in which the children shared which games they visited within the sites and which ones they liked most, enabling the children to learn of other possibilities from their peers.

Findings

This section is organized around three major themes. We begin by offering some additional background for the interactions, using examples of the conversations between Antonia and her student César to illustrate how the students were being introduced into the program (i.e., into playing online games and using email). These interactions also involved the fluid use of Spanish and English mediating their interactions and digital learning, and the roles the Interns played in mediating this learning. Second, we pay attention to the kinds of digital literacy learning the students demonstrated while using websites aimed at supporting their production of multimodal texts and digital media. Third, we discuss and analyze examples in which the locus of authority began to shift, and the students began to learn from each other. The data illustrate the interactive nature of the ZPD afforded by the Amigos

Clase Mágica in the manner outlined by Moll (1990) and the ways in which bilingual children whose linguistic potential is underestimated in their schools demonstrate expertise when provided settings for learning that encourage their agency.

Creating a Bilingual Community Around Books and Computer Games

During the first three days of the program (Week One and Two), the two major goals were to introduce the students into the program and to learn about their digital literacies and experiences with computers. The coordinator (a graduate student) and the first author began to build a sense of group and community as members of La Clase Mágica program through a series of activities that we thought could help us introduce the fantasy and playful aspect of the program and a sense of identity as bilingual Latino/a students. We used a culturally relevant fictional story to introduce the fantasy entity of El Maga, whose identity and gender were unknown and to whom they would be sending emails. The first author read aloud the story *Prietita and the ghost woman/Prietita y la Llorona* (Anzaldúa, 1996). The children eagerly contributed comments in response to the story and shared experiences about La Llorona, and from there we introduced the fictional entity of El Maga. After the reading, collectively we developed some rules that would help everyone enjoy the program, and everyone, children as well as interns, signed them. The last part of that first day was used to set up an email account for each child so that they could send and receive messages from EL Maga.

To introduce the students into the online games while informally assessing their digital learning, we chose a game, identified a website that was simple to navigate, used Spanish and English, and made reference to the bilingual Latino children Maya and Miguel. The game is actually based on a PBS TV program for children with the same name. The Maya and Miguel game was a success for most students. A couple of them who had experience with more complex games found it a little boring, and yet they engaged with it. In addition to the emails the children sent to El Maga, these games helped the interns to get to know the children as persons and digital literacy users and helped the kids get to know the two iInterns or Amigos/as who would work with them.

The interactions presented next between Antonia, the intern, and César were typical of what transpired between children and their mentors during the first three days. We present the language used in conversations as they used it, codeswitching between English and Spanish. We use italics to

represent the Spanish part of the sentences followed by English translation in brackets, while we will use regular print to represent English as used by the participants. The children's codeswitching reveals the manner in which their use of their bilingual capabilities contributed to their learning opportunities in this out-of-school learning environment, in contrast to what is often available to immigrant children in school (Gutiérrez, 1999).

- Intern: *Ahora vamos a hacer un email: ¿Sabes lo que es un email?* [Now we are going to create an email. Do you know what an email is?]
- César: Uhum.
- Intern: *¿Tú tienes un email ya?* [Do you already have an email?]
- César: *No.*
- Intern: We are going to create you one. *Tú le vas a escribir al Maga.* [You are going to write to El Maga]. (Antonia helps the student answer questions to create an email account).
- Intern: Is it male or female? Male *significa* [means] *hombre* [man] y [and] female *significa* [means] *mujer* [woman].
- César: Boy
- Intern: *Casi siempre te preguntan eso. . . .* [They almost always ask you this question] . . . (César choose the pseudonym Rey Misterio or Mystery King).
- Intern: *Dice:* [It says:] this is not available; *es que alguien ya lo tiene . . .* [someone already has it]. . . (They make changes to the pseudonym until it is accepted by G-mail. When this part is almost done, Antonia accidentally deletes the information or doesn't save it).
- Intern: What did I do? I just put- *Oh no! Vamos a hacerlo otra vez.* [Oh no! Let's do it again].

(Transcript Day 1: March 4, 2010)

This routine became familiar to students and interns since in each new game, they had to go through the process of choosing names, passwords, and gender, and answering security questions. The students were instructed to use invented names during the games and never give their real names or dates of birth, and so the children came up with interesting names, such as El Hombre Araña (Spider Man) or in César's case Rey Misterio (Mystery King). As this excerpt shows, the interns mediated students' access to digital literacies, especially at the beginning, in very explicit and direct ways as they helped the children set up their email accounts or game accounts. The children eventually learned their self-selected names and their passwords and learned where to find Gmail on the website and how to search for games in Google.

Another important piece of information the interns and children soon learned was that some games offer the user a language choice. In the next excerpt César was using the Maya and Miguel website during the second day:

Intern: If you want, you can google it: Maya and Miguel.
 César: ¿Cómo se escribe? [How do you write it?]
 (Antonia spells Maya and Miguel for him).
 César: Do I have to leave space? . . .
 (Finds the website)
 Intern: A ver, ¿lo quieres poner en español o en inglés? [Let's see, do you want to have it Spanish or English?]
 César: Español [Spanish]
 (Transcript Day 2: March 10, 2010).

On this day, Antonia wrote in her field notes under computer skills: "I noticed that my student knew how use the space button, the use of the caps lock, and moving the cursor. I also learned that he is used to using Firefox." As we will show later, by the end of the program the interns would express amazement at the amount of learning their children had shown in comparison to the lack of skills the children demonstrated at the beginning.

Antonia also learned early on that César, like herself, was bilingual, but he preferred Spanish and read and wrote in Spanish although he used English often in their interactions. Although the interns were encouraged to use Spanish as much as possible, interns and children moved freely between Spanish and English and resisted any kind of language dichotomy. Through the use of borderland linguistic practices, interns and children had an opportunity to assert their bilingual and borderland identities (Martínez-Roldán & Sayer, 2006) while developing identities as tech savvy students. Spanglish, as described by Zentella (1997) and Bernal-Enríquez and Hernández Chávez (2003), was a crucial mediational tool in students' and undergraduates' interactions around computer games. Nevertheless, the interns used every opportunity they had to help students with their English and mediate the children's language learning. They spelled words for the children or translated for them, as the excerpt above shows. However, Antonia, like most of the interns, was a Latina English dominant, and there were instances in which they were the ones relying on the children as resources for their own Spanish language questions, as the following two short interactions illustrate. Right from the beginning, the relationship between expert and learner was not straightforward:

(They are getting to know each other before beginning the reading and play)

Intern: *Mi perro se llama Bullet. ¿Sabes que es bullet? En español es como “bala” como bullet porque como que le gusta correr bien de volada.*
[My dog’s name is Bullet. Do you know what does Bullet means? In Spanish is *bala* like bullet because he likes to run very fast.]

(They keep sharing. César talks about his dog...)

Intern: *¿Cual es tu subject favorito?* [What is your favorite subject?]

César: What’s a subject? (Antonia provided examples of subjects).

(Transcript Day 1: March 4, 2010).

The next week:

Intern: *¿A ti te gusta jugar bowling? ¿Como se dice bowling en español?*
[Do you like to play bowling? How do you say bowling in Spanish?]

César: *Boliche.*

Intern: *¿Sí?* [Yes?]

(Transcript Day 2: March 10, 2010)

The next day, while writing an email to El Maga, César asked Antonia: “How you do the *eñe*² [in the keyboard]? I forgot.” Therefore, there were instances in which the children and the interns supported each other with language issues.

Although the program had some structure, it also had an informal character to it in addition to its focus on games. Within this context, power and authority presented themselves in a more distributed form (Salomon, 1993), as we illustrate later. In the next section, we offer additional examples of the children’s learning from the interns’ careful planning and assistance over time. We wanted to create the basis where students could begin to see themselves not just as consumers of games but as producers of digital media.

Beyond the Consumption of Games to the Emergent Production of Digital Media

An analysis of the students and the interns’ interactions during the last two weeks reveals how much progress the children made in the program. In Week Six all students prepared Glogs (<http://edu.glogster.com/>)—digital collages. The students had to produce a multimodal text. All children had been given digital cameras to take photos that they would be able to use in

² Indicated alphabetically as *ñ*

the creation of their Glogs. Some students used this experience as an opportunity to become producers of their own ideological materials (Black, 2009) at an introductory level, since they used videos from their popular culture, ideological signs from their environment (e.g., the use of the non-smoke sign to express their dislike for smoking), the creation of bilingual texts, and an integration of their families into their Glogs.

More than in previous weeks, the room buzzed with an active social interchange of ideas, sounds, and images. Spontaneously, the students began to share with others the videos and the background pages they were using. At the end of the session, two interns facilitated the sharing of the Glogs using a projector. There was a high level of excitement in the classroom as all students asked to show their Glogs, although the original intention was to show only a couple. Figure 2 shows César's Glog, with a video clip about soccer, photos from his family, and some text in Spanish. In case someone doubted about his authorial role, he added: "created by César."

Insert Figure 2 about here

For the last week, Antonia decided to engage César further in digital media production and had him create short movies using the program Animoto. Animoto was definitely a more challenging site to use for the children, yet it appeared that the timing for using it was right for Antonia and César. Antonia had presented this website to the university class and so knew very well how Animoto worked. After having spent so many sessions with César, she also knew his abilities with games and felt confident about how to facilitate César's learning. César learned what to press to create a new video, how to add pictures, how to look for music, and how to add it to the video. He also knew how to open a new tab, how to make the computer window larger and smaller, how to save images to the desktop, or throw them away into the recycle bin, how to upload the pictures onto Animoto, and how to edit text into the video.

By exposing César for four days (two consecutive weeks) to the creation of multimodal texts (Glogs and movies), Antonia provided César with the prolonged engagement needed to gain as much as possible from the learning experience (Gee, 2007a). Antonia commented. "I was really impressed by César's performance during Animoto because I saw improvement, for the most part he knew what to do and wasn't depending on me." The production of his own Glog and three little movies could be considered the "buds" or "flowers" of development Vygotsky (1978) referred to rather than the "fruits" of development (p. 86) in terms of his digital literacy learning. The

progression César showed from day one to the last day of the program is a clear example of the effective mediation provided by this bilingual program and Antonia to César's learning of some digital literacies that will support him on developing more complex 21st-century literacy learning. It illustrates how the child became more independent with appropriate guidance in an enjoyable and motivating learning activity, helping him navigate the zones of proximal development through which he acquired new levels of ability. His learning path thus did not follow the linear route suggested by the scaffolding metaphor and "containment" conceptions of the ZPD. Rather, his learning process under the mediation of the Amigos Clase Mágica—including his intern partner, the games, the trajectory suggested within the setting, and other factors—indicates instead that an interweaving of mediational tools and social processes contributed to César's learning.

Spaces for Reciprocal Teaching and Learning

The zone of proximal development in this classroom was a permeable and reciprocal space for learning in which children learned from peers, and in which the Interns learned from the children. Both children and Interns learned from the games, which offered particular affordances. Maya and Miguel offered very different learning experiences than did Neopets, Glogster, or Animoto. Being able to move across Spanish and English was also a major mediational tool. Likewise, the physical space had a role in mediating some interactions and limiting others, although students found ways to exercise some agency within the physical constraints of the seating arrangements. As in Wang and Carter-Ching's (2003) study, the children found ways to reorganize the space and "enter" into their peers' games overcoming the limitations of the physical space (rows in which each student had his or her own computer) and overcoming pre-arranged interactions (one intern—one student) in very interesting ways creating new zones for themselves and their peers. The children sometimes just stood up around another peer playing a game (uninvited) and suggested strategies (sometimes almost at the end of the day), or just left their chairs to offer help even if that meant walking toward a different row to assist a student based on the sounds coming from their peers' computers. Gradually, the children developed ownership of the space and the activities by mediating their peers' navigation of the games, suggesting that they were learning through the mediation of others (Moll, 2001) including their bilingual peers.

Peer influence and mediation was evident in different ways, sometimes in subtle ways and at times in a more intentional way. The most common and indirect way the children influenced one another was when they learned what

games the others were using as a way to inform their own decision-making about what to play or what strategies to use. César used this strategy when he was creating his Glog page. He noticed that his classmate next to him was looking at videos, and then he decided to see those videos and to eventually add a video to his own Glog. At other times, the children directly asked their peers for help or volunteered strategies to others by entering into the interactions the neighbors next to them were having with their interns, as the following two examples illustrate. In the next interaction, César was playing Panfu. In this game, the children had to create a Panda that represented them and had several options, tasks, and games to complete. At one point in the game, César's Panda was not doing well, and the following exchange took place:

César: I already did this one. *¡Me estoy muriendo!* [I'm dying!] (His Panda)
 Antonia: Ah?
 César: *Me estoy muriendo.* [I'm dying.] (He said with a tired voice).
 Kid 2: *Agarra algo de comer.* [Pick something to eat.]
 Antonia: *¿Pescado a lo mejor?* [Maybe fish?]
 (Transcript Day 5: March 25, 2010).

In this game, as in others, Antonia suggested strategies to César to navigate the games, but he also received the advice of a peer. César was well into the game and had identified with his Panda to the point of saying that he was the one dying. Another child heard him and suggested a strategy to survive the challenge and keep playing: "*Agarra algo de comer*" [Pick something to eat]. This interaction is telling given that most of the time, between the children, there was an intern working with a student, obstructing possibilities for such interactions to begin. As Wang and Carter-Ching (2003) found in their study of first-grade students interacting around computers, "children also reshape their goals and appropriate and transform the affordances of the cultural artifacts through their social practices" (p. 338).

Similarly, some students preferred to seek assistance from their peers rather than from adults (Chandler-Olcott & Mahar, 2003), destabilizing the traditional loci of authoritative knowledge. This preference was especially noticeable during the last day of the program in which the children were told they could choose which game to play. Some interns, as Antonia did, enticed their students into trying a specific game before choosing their own, but many of them allowed the student to choose which game to play during the

whole session of that last day. The interns had to step back since many of the children chose games their mentors had not played before, creating the conditions where peer collaboration and mediation were more noticeable. For example, in the following interaction, after not getting initially a straight answer from the intern, a child preferred to go to his friends to solve a problem instead of following the intern's suggested strategy of using the "search option" to find information:

Every now and then, he would ask me where he could find a game, but since I did not know the site, I could not tell him, so I told him he should search it using the search bar. He did this maybe twice, but he knew his friends knew where to find most of the games, so he would get up and ask them where to go. (Field Note, Luisa, April 22, 2010)

The decision of some interns to play *with* the children in games chosen by the child also contributed to decentering the loci of authoritative knowledge since the intern had to be guided by the children. Half of the undergraduates reflected upon this shift as the opening excerpt illustrated. We close this section with two additional examples representative of the dynamics that took place within the last week, in which many children acted as the experts and taught both their peers and the interns:

During the time in the computer, they were interacting with each other and Axel guided Josué through the games. He would guide Josué by telling him how to play a game. (OC: I was happy to see that Axel would help Josué as needed. I was not familiar with this website and Axel guided us throughout the day.) (Field Note, Esterla, April 21, 2010)

I really liked that she was able to show me, instead of me always showing her game. She showed me strategies about the game that we were both playing in order for me to advance to another level. (Field Notes, Myrta, April 22, 2010)

This distribution of power and knowledge was in great part enabled by the opportunities the students had to choose their own games that last week. Interestingly, the students chose games and websites that their classroom teacher had taught them. Thus, their teacher was also mediating the learning taking place in the Amigos Clase Mágica, even without being physically there, a possibility Vygotsky (1987) noted: "When the school child solves a problem at home, on the basis of a model he has been shown in class . . . it is a solution accomplished with the teacher's help. This help—this aspect of

collaboration—is invisibly present” (p. 216). In this way, the collective zone of proximal development created by the after-school program was permeable enough as to incorporate elements of the students’ learning history with their teacher in their regular classroom, along with their peers’ expertise, the interns’ assistance, and the repertoire of linguistic resources available to the children: those coming from their home-based discourse, the interns, and the language of the games. Within such collective zone, students’ and interns’ roles gradually began to shift resembling the kind of learning community Freire (1970) envisioned in which both (adults and children) are simultaneously teachers and students.

Discussion

The collective zone of proximal development created by the Amigos Clase Mágica in which bilingualism, games, peers, and adults all mediated students’ and interns’ learning stands in sharp contrast to the pervasive efforts to standardize education for all children, which taken to an extreme, are exemplified in legislations that prevent schools from providing language minority children with the opportunity to use their linguistic resources to learn (Portes & Smagorinsky, 2010). Dramatic examples from Arizona, related by teachers to the first author, include stories in which they are forced to cover the Spanish part in bilingual children’s books with sticky notes. In one first-grade class, a supervisor inspected the bilingual picture books on the shelves to see if the Spanish text in those books was indeed covered, leading the students to limit their contributions in class because they were afraid that they would speak Spanish and get their teacher in trouble. Another teacher reports that in classrooms with language minority students in Arizona, there can be no spoken or written Spanish, no work with cognates, and no bilingual buddies; her class must be conducted only in English. Moll (2010) describes such mandates as a regime of standardization that fails to mobilize the social, cultural, and linguistic processes of diverse communities as the most important resources for positive educational change. Within such subtractive contexts (Valenzuela, 1999), bilingual teachers’ and students’ borderland identities, far from being affirmed, must be jettisoned.

These trends to standardize education prevent teachers of minority students from incorporating in meaningful ways pedagogical practices that support students’ learning of 21st-century digital literacies because the curricula most Latino/a children receive have to focus so heavily on providing just conventional basics literacy skills and these in English. When digital technologies are embraced, they are often incorporated in ways that keep conventional print-based literacy as the center of the curriculum

(Reinking & Carter, 2007). By sharing the kinds of learning that took place in the Amigos Clase Mágica, we are not making an argument for incorporating games in and of themselves into the classroom. Rather, we are suggesting that classrooms serve as well-designed activity systems that include multiple means of mediation. Providing quality learning opportunities to language minority children that include access to digital literacy learning, not only for their consumption but for their production, is not a matter of making education fun for students, but it is an issue of social justice, since all students should be provided with the learning experiences needed to be successful in a society that demands much more than knowledge of the basics.

Restrictive language policies also limit the zones of proximal development available to children. By imposing a single developmental trajectory on young learners, schools, by implication, allow only for selective access to life experiences and the knowledge they afford. Students are thus deprived not only of a cultural identity and the sense of confidence and security it facilitates for them as learners, they are denied the opportunity to draw on the prior knowledge, including the cultural schemata they have learned through home and community socialization, that cognitive psychologists have long identified as the foundation for new learning (Bransford, 1979). Conceiving of classrooms as permeable zones of proximal development in which children's learning is interwoven with culturally appropriate mediational tools and multifaceted proleptic possibilities, we believe, affords the greatest learning potential not only for immigrant and multilingual children but for all involved in the settings of formal education.

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Figure 1: The Laberinto or Maze

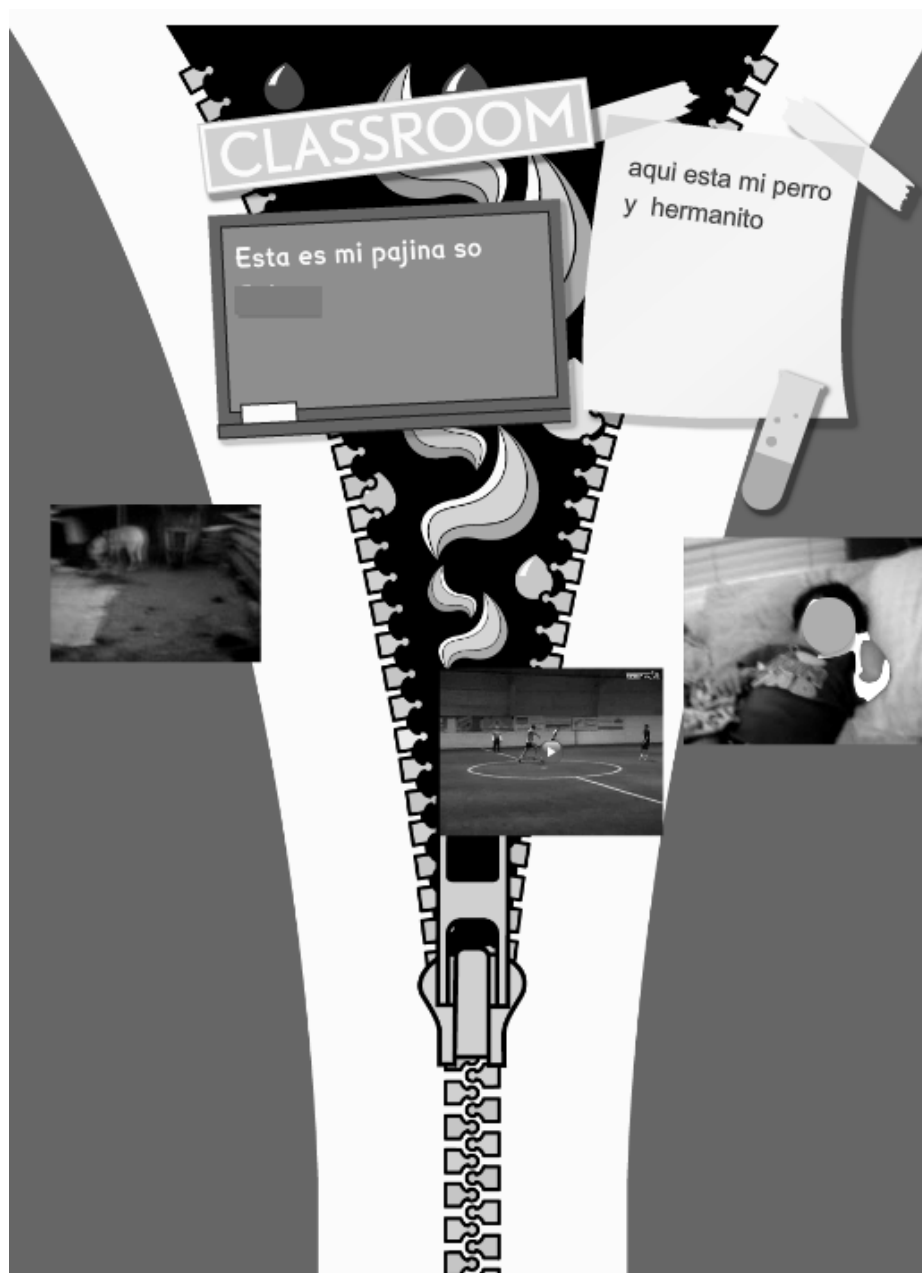


Figure 2: César's Glogster page

