

Hybrid literacy texts and practices in technology-intensive environments

Paige D. Ware^{a,*}, Mark Warschauer^b

^a*Southern Methodist University, 3108 Fondren, Box 750381, Dallas, TX 75275, USA*

^b*Department of Education and Department of Informatics, 2001 Berkeley Place, Irvine, CA 92697-5500,
University of California, Irvine, Irvine, CA, USA*

Abstract

US youths' lives are increasingly divided between the academic requirements of school and immersion in new media and culture outside school. Educators can help bridge in-school and out-of-school literacy practices by encouraging students to engage with hybrid texts that draw on multiple modes of representation. In this paper, we analyze the 'disconnect' between academic literacy and new media, discuss the concept of hybridity as a way to bridge it, and provide a linguistically grounded analysis of students' hybrids texts and practices in two technology-intensive learning environments: a digital storytelling project in an after-school university-community collaborative and a one-to-one laptop program in an urban school district.

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1. Introduction

US youths' lives are increasingly divided between the academic requirements of school and immersion in new media and culture outside school. Educators encouraged by the potential for new media face the challenge of helping their students understand the standard ways of making meaning that are most influential in academia, while simultaneously engaging students in new forms of digital literacy. This challenge gives rise to the possibilities of hybridity, in which students cross traditional academic boundaries of genre, media, and modality in the production of texts. We focus in this

*Corresponding author. Tel.: +1 214 768 8623; fax: +1 214 768 8700.
E-mail address: pware@smu.edu (P.D. Ware).

paper on how hybridity can help bridge in-school and out-of-school learning. We analyze the ‘disconnect’ (Levin & Arafeh, 2002) between academic literacy and new media, discuss the concept of hybridity as a way to bridge it, and examine examples of hybridity in after-school and in-school programs highlighting innovative and intensive uses of new technology.

2. Disconnected: literacy practices at home and school

The last few decades have witnessed rapid transformations in the tools and practices of literacy, enabled by four revolutionary features of information and communication technology (ICT). First, ICT allows *interactive written communication* as evidenced in instant messaging, chat, and e-mail, thus bridging the historic divide between speech (traditionally used for interactive communication) and writing (traditionally used to record experience and interpret and reflect on meaning; see discussion in Warschauer, 1997). Second, ICT allows the creation of *hypertexts*, challenging traditional forms of narrative and bringing together information in entirely new ways. Third, ICT democratizes *multimedia creation*, allowing the easy combination of text, image, sounds, and video, and thus challenging the dominance of the written word in many professional, training, and academic contexts. Fourth, ICT allows a global form of *many-to-many communication*, as witnessed by the growing popularity of blogs and their increasing impact on journalism, politics, and personal expression.

These tools have changed literacy practices around the world, and in America it has affected in particular what Howe and Strauss (2000) call *Millennials*, a generation born from 1982 on, that has grown up as “native” users of new digital technologies. Ethnographic research has explored in detail the vast range of literate texts and practices that today’s youth engage in outside school, exploring topics ranging from how immigrant youth participate in and create multilingual communities online (Lam, 2005), how urban African-American students write “street scripts” (Mahiri, 2004), and how children excel at mastering the complex worlds of video gaming and programming (Gee, 2003). A typical Millennial youth might spend several hours a day at a computer, often doing five or six things at once, such as playing multiplayer online games, downloading and listening to music, instant messaging friends, participating in chat rooms, and surfing the Internet (Miller, 2002). These literacy activities often involve intense and passionate engagement with other people, a high degree of personal involvement, and the combination of a diverse array of semiotic resources.

And yet, the technologically rich worlds of multimedia texts and Internet-based communication that this growing body of research has documented looks very different from the literacy practices that characterize youths’ lives at school. In spite of a rapid rate of technologization in US schools, computer, Internet, and other digital media remain on the margin of US education, used relatively infrequently during the school day (Cuban, 2001). And much of that use of technology is for drill and practice activities, especially with students in low socioeconomic status (SES) communities (Becker, 2001). This has led to what Levin and Arafeh (2002) call a *digital disconnect* between the rich and diverse ways that students use the Internet at home—including as a virtual textbook and reference library, a virtual study group, a virtual locker, and a virtual guidance counsellor—and the much narrower ways that they use it at school, due to limited access, restrictive policies, and conventional assignments.

In some ways, this digital disconnect has worsened in recent years, as high-stakes testing regimes complicate efforts at creative uses of technology (Warschauer, Knobel, & Stone, 2004). In US public schools, the dominant perspective of literacy as a set of technical, neutral, and measurable subskills has gained momentum, particularly since the passage of the federal No Child Left Behind act in 2001. In large urban school districts, literacy is often defined as a set of autonomous, discrete skills mastered by working with decontextualized texts (see, for example, Street, 1995). In this model, literacy can be easily measured by multiple-choice exams and can be readily scored for purposes of state and federal accountability. What “counts” as literacy, in short, is what can easily be counted, and it continues to dominate the development of literacy curricula and professional development in K-12 schools. It is low-SES and linguistically diverse learners who are often most affected by this disconnect, as it heightens the difficulty of building on their home-based literacy proficiencies. Not finding ways to connect to such proficiencies, developed in activities such as video gaming, translating for parents and family members, personal journal writing, and online chatting, can have an adverse impact on the transition to academic literacy.

3. Reconnecting: hybrid literacy texts and practices

We do not promote this conventional notion of school-based literacy within the narrowly defined autonomous model, but rather take a broader view of literacy as a social practice embedded in socially constructed beliefs and values (Gee, 2004; New London Group, 1996; Street, 1995). To be literate in the academic world, individuals must be able to do much more than decode and encode; they must use and interpret multiple semiotic resources in response to particular communicative and performative demands across a range of contexts. We align our expectations of students’ academic literacy practices and competencies with those recently forwarded by a group of faculty from California’s higher education system: reading and writing, listening and speaking, habits of mind, and technology use (Intersegmental Committee of the Academic Senates, 2002).

3.1. Theoretical perspective

In our research over the last 2 years, we have been examining the literacy practices and textual products of students inside two types of technology-intensive alternative learning spaces: a community-based technology and literacy program and K-12 one-to-one laptop programs. Our work has been, as Luke (2003) describes it, “to track the hybrid or ‘new’ literacies that are emerging as students ‘discover’ and ‘construct’ knowledge ... in the context of connectivity and mobility and a complex semiotic path of alpha print, images, acronyms, symbols, and icons to shape and express their learning” (p. 400). Hybrids are blends of traditional texts and multimodal products that afford students a wider range of cultural meaning-making material. They have more choice as readers and writers, and ultimately, a greater sense of the communicative whole of being literate in a world where literacies are not firmly divided into old and new, or school-based and out-of-school.

We situate our analysis of hybridity within the multiliteracies framework that views literacy learning as a triadic process of designing (New London Group, 1996). In this design view, students have as their starting point a wide range of available designs, or multiple linguistic and semiotic meaning-making resources, including the symbolic

resources of multiple cultures and contexts inside and outside school. Through a process of designing, students draw on a selection of these resources to create new textual products, which are formed out of multiple modes of representation—speech, writing, image, gesture, music, and others—what Kress and Jewitt (2003) define as “the resources that a culture makes available as the means for making representations and meaning” (p. 4). In this multimodal approach (Kress, 2003) textual products that result are, in fact, “redesigned,” entailing in the process of their creation some transformation of meaning. The new texts can closely resemble the primary textual resources, or they can radically transform the original meaning.

3.2. *Sites and participants*

Our first research site was an after-school literacy and technology program, Digital Underground Storytelling for Youth (DUSTY: Hull & James, 2006), an after-school university-community collaborative in a low-income neighbourhood in northern California populated principally by African-American and recent Asian immigrants. In a number of recent initiatives, university faculty and community activists have received external funding for creating community or after-school centres that link young adult mentors with youth (Brown & Cole, 1997; Seiter, 2004). Research on student participation in after-school programs documents a high correlation with better school attendance, more positive attitudes toward school, reduced drop out rates, and higher aspirations for college (McLaughlin, 2000). Such alternative learning spaces can provide a wider variety of literacy experiences than available in most schools (Spielberger & Halpern, 2002) and consequently have been places where youth have been supported in their experimentation with hybrid texts and practices.

After-school and community-based technology programs like DUSTY bring youth into structured media-intensive environments but without the testing and curricular imperatives of schools. The main focus is often not directly on academic learning, but instead on serving as an alternative space where youth can build different identities as learners, senses of themselves that are often much stronger and more confident than the one they develop in school (Hull, 2003). At DUSTY, urban youth and their college-aged mentors wrote, orchestrated, produced, revised, and showcased digital stories about themselves and their communities. Youth made a range of multimodal productions about personally meaningful stories as diverse as the death of a favourite grandfather, a favourite music icon, a visit to relatives in El Salvador, and a multimedia movie sent as a letter to “movie pals” in India.

Our second research space has involved carrying out case study research in an urban school district in southern California on one-to-one laptop programs, in which all the students in a school receive laptops for use on a daily basis (see Warschauer, 2006; Warschauer, Grant, Del Real, & Rousseau, 2004). This district is in the process of implementing the largest public school laptop program in the state. In the first year of the program, laptops were distributed to all the students in three sites: a middle school serving predominantly high-income Asian American children, a middle school serving mostly Latino students in a lower socioeconomic area, and an elementary school for a diverse population of students targeted as gifted and talented. Although all of the teachers worked in a large urban district, which, like similar California districts, tended to emphasize preparation for high-stakes testing, they were still able to integrate new content and

methods as part of the laptop program, requiring a considerable amount of creativity, time, initiative, and flexibility.

To date our findings from a study of this program, particularly in comparison to prior research on technology in K-12 schools (e.g., Warschauer, Knobel et al., 2004), suggest that such hybrid practices take place much more regularly in one-to-one programs (one computer to one student). This appears to be partly a function of the more regular access to computers (both at school and home, as students take the laptops home), thus facilitating the integration of the technology into instruction and helping overcome the home–school disconnect. In addition, many of the K-12 institutions that have been early adopters of laptop programs have progressive educational traditions or leaders, and thus encourage innovative teaching.

3.3. *Data collection and analysis*

Data from each of the two main programs—DUSTY and the laptop initiative—are selected from a multi-year investigation that draws on multiple sources of data, including student and teacher surveys; weekly classroom observations; administrator, teacher, and student interviews; videotaped and audiotaped interactions around computers; student test scores; and student artefacts ranging from multimedia stories to online worksheets. This larger data set forms the background of our current analysis of a selection of hybrid texts and practices (for an extended analysis of the entire project, see Warschauer, 2006).

As we began the analysis of this large quantity of student-produced work, we coded for examples of hybrid literacy texts and practices, instances in which students drew on multiple modes and media. In coding the database of students' texts in these two settings, we looked for commonalities in how teachers, mentors, and students utilized multimodal texts, either for developing familiarity with the kinds of academic learning influential in school on the one hand, or for engaging with active exploration, self-representation, and reflection on the other.

Commonalities we found included frequent mixing of visual, graphic, linguistic, and other semiotic modes. Linguistically, students' texts shared a reliance on syntax more akin to the oral than the written, that is, a limited amount of syntactically complex sentences (Kress, 2003). In short, students tended to write multimodal texts as they would speak, in simple, direct sentences and without using more difficult grammatical structures characteristic of other genres of writing. Finally, students also frequently “re-purposed” (Hull, 2003, p. 231) the written linguistic mode by placing it in a visual context; the words were lent different meanings through their juxtaposition with visuals, meanings that could not have been expressed through words alone.

For the purposes of the focused linguistic and semiotic analysis in this paper, we have chosen to examine only a small selection of the many hybrid texts and practices we have collected in the larger investigation. The texts analyzed serve as salient representations of the common linguistic and semiotic themes we saw occurring across the larger data set across both sites. We chose these texts to highlight our conceptual claims about how hybrid texts and practices can serve as bridges for youth. Certainly, we are familiar with less successful examples but for the purposes of this manuscript limit ourselves to a critical analysis of those that do exemplify such bridges (for a thorough analysis of the broader data set in the laptop schools, see Warschauer, 2006).

4. Connected: hybridity in a university-community collaboration

In this section, we examine the after-school context as a site where youth can build positive educational identities through the multimodal practices afforded by technological and social interactional resources. Through the cases of Inma and Gabriela (pseudonyms), both bilingual Latinas of first-generation parents, we focus specifically on how the multimodal practices surrounding their interactions with young adult mentors and semiotic resources in this technological environment increased their identification as competent readers and writers. As Hull and Katz (2006) have recently argued, places like DUSTY offer youth and young adults not only access to technology, but also access to a community that supports, values, and legitimizes their multimodal texts and practices. It is important to note that not all students opt to come to after-school centres. For many that do, their choice may be influenced by the lack of other safe places to stay in low-income urban settings in the after-school hours.

Our first student, 9-year-old Inma, excelled in the genre of digital stories, which Hull (2003) has described as personal narratives made into multimedia texts using software programs that allow for the mixing and blending of sound, voiceover, printed text, image, and video. Inma carefully wove together text, images, voiceover, and music to create a movie about a trip she took to the zoo, in which a baby tiger escaped and ran through her legs. In an interview, she demonstrates a strong sense of audience awareness in her authorial role as a moviemaker: “The more details, the better the story is going to be, and the other people are going to be so interested in your movie, because they are going to say, ‘Oh look that has lots of details,’ and like if they are seeing another movie *without* details, then they’re gonna say, ‘Let’s go to the details movie.’”

A “details movie” for Inma was more than just an “additive art” (Hull & Nelson, 2005, p. 225) in which she layered visual and narrative details to amplify the overall effect of the movie. Rather, she carefully considered and crafted each individual image as a powerful vehicle for creating an impact on her audience, an impact not easily realized through words alone. For example, in preparing her 2-min movie about the trip to the zoo, which included a total of 24 images, she spent 90 min in Photoshop enhancing a single image of a tiger dressed in graduation cap with a diploma that flashed on the screen for only two brief seconds.

For Inma, who relied heavily on drawings to accompany all her written work, from daily journal writing to edited biographies, such careful visual elaboration of the main character of her story was necessary to indicate the importance of the tiger’s intelligence. She often amplified her authorship in this way by searching for a deeper meaning through a process of adding and combining modes. In this case, she added a visual mode to the primarily linguistic account of a tiger’s escape. The voiceover narrative that accompanied her story during this image describes the tiger as “so smart because he knew where all the animals were.” The affordances of language, however, fell short of conveying the powerful sense of the tiger’s intellectual prowess, so she enhanced his image with a cap and diploma.

Even at this point, however, Inma was not satisfied that the visual image alone conveyed the sense of the tiger as “really smart.” She turned back to the linguistic mode and wrote an acrostic poem using the word “congratulations” on the diploma. In this process, she sought out one of the adult mentors at DUSTY for advice, and together, they worked on her multimodal creation to describe in greater detail the positive attributes of the tiger. Embedded in the process of Inma’s digital story creation is a thirty-five minute literacy

practice that mirrors conventional academic literacy instruction. As they co-authored the poem, Inma and her mentor (M) engaged in a conversation typical of academic learning about spelling accuracy and vocabulary building:

Inma: And then, this is going to be intelligent. I- n- t-e- l?

M: Tell me! Tell me! [Writes the word “tell” in the notebook] Sometimes the “tell” /l/ sound takes two ll’s in English but not in Spanish right? In Spanish it’s one l.

Inma: And it sounds, two ll’s sound like, like /y/.

M: Yes, like what are some words?

Inma: Callar.

M: Llamo, me llamo?

Inma: Llamo o llama. Yeah... Guillermo... .

M: Gosh, I wish this was a poem about me. So many wonderful words!

Through writing this jointly constructed poem, Inma infused the visual mode with language. During the two-second flash of the “smart tiger” on the screen, her audience would certainly not be able or expected to read the actual words, but the writing serves to amplify the effect of the tiger’s intellectual prowess as he appears in full graduation regalia.

Unlike Inma, seventh-grader Gabriela was much less confident as a digital storyteller and much less likely to call on the support of a mentor as a resource. Although Gabriela had attended DUSTY for over 2 years and had been using technology with competence, she downplayed, and often hid, her knowledge of digital storytelling. Initially, she rarely participated in group projects and had to be coaxed to join in. However, Gabriela did enjoy writing, albeit initially only in English, and as one mentor phrased it, used these written texts as both a “shield” to keep her peers at an arm’s length and as a “magnet” to inspire people’s curiosity and reel them in. The mentor suggested that Gabriela’s writing might be connected to her ambivalence about being bilingual:

Another possible motivation for Gabriela’s attachment to the writing medium might be her shyness about being a bilingual Spanish–English speaker. Gabriela often talks about “hating Spanish,” and perhaps feels some stigma in speaking it, or uses it only for home discourse and not in school or social situations. If, in a given context, Gabriela feels uncomfortable with verbal expression in both languages, it would make sense for her to seek out some more private option. (Fieldnotes, May 2003)

For Gabriela, the core of the literacy practices at DUSTY were not the actual textual products made—a digital movie or a personal narrative—but rather the social interactions afforded through the literacy practices themselves.

A turning point for Gabriela came in her second year as a participant, when, after claiming for months to hate Spanish, one of the mentors whom Gabriela looked up to, and who had studied Spanish, solicited her help with a digital video on basic Spanish language instruction. Gabriela was enlisted as the native speaker who was needed to pronounce phrases correctly. The verbal mode of the language video necessitated a native speaker, and Gabriela’s authority as such crafted an alternative space for her, a starting point where she began to embrace her own language as a resource. After this short project, Gabriela’s social interactions shifted at DUSTY, and her literacy practices expanded from monolingual English texts to include a repertoire of Spanish compositions, including a digital mother’s day card and a bilingual digital story about the diversity in her community

that she created with her group project. For Gabriela, it was not just the digital storytelling itself, but also the affordances of the social practices that surrounded these multimodal texts, that served as a new form of “mediational means” for her, one that [Hull and Katz \(2006\)](#) argue will form part of one’s typical literate abilities with digital texts.

The examples of Inma and Gabriela demonstrate how after-school settings can invite youth to engage with literacy in novel ways using various forms of new media. In such contexts, the adults who work together with youth are in very different positions than teachers in schools. There is no institutional pressure to meet curricular or testing demands, thus allowing students the time to pursue individual projects. Also, interactions at the after-school centre did not focus on building academic competence per se, but rather on bringing people together, affirming their competence, and challenging them to build positive educational identities through their digital literacy practices.

This particular innovative after-school program lends itself well to being viewed through a rose-tinted lens, as such time- and human-intensive resources mix well with technology to foster learning spaces that support youth in the creation of hybrid literacy texts. However, it is important to keep in mind, first of all, that such after-school programs can only reach a small minority of US youth. Second, although human resources in after-school settings can often be allocated in ways that allow adults to mentor children more intensively, the mentoring relationship is oftentimes only indirectly tied to success in traditional academic tasks. So, while students like Gabriela receive much-needed and much-valued individualized support for her independent project work and her sense of self as a bilingual person, many educators would question the degree to which her academic competency also increases. Educators more attuned to classroom settings than after-school programs might also question the use of instructional time when a student spends 90 min perfecting a single image for a multimodal production.

The different demands of school, as we shall examine next, place less emphasis on youth identity and involvement and more emphasis on building bridges to engage youth with challenging academic texts. As social institutions, schools cast adult mentors into roles as teachers who are responsible for helping large numbers of students through a large amount of state-mandated curricular competencies in a limited amount of time. Thus, many of the liberties of after-school programs are severely diminished or non-existent in academic settings. Though some classroom teachers value hybrid literacy texts and practices (see discussion in [Morrell & Duncan-Andrade, 2004](#)), such innovative practices are infrequent in schools. In the next section, we provide a partial account of how teachers in the laptop program helped their students to blend, mix, and match knowledge from sources as diverse as the state-mandated curriculum to their home communities and popular culture (for an extended report, see [Warschauer, 2006](#)).

5. Connected: multimodal texts in laptop schools

A great deal of classroom-based research has documented the pedagogical value of building on students’ knowledge of, and interest in, popular culture to engage them in studying the mandated academic tasks and to develop their ability to analyze those texts ([Morrell & Duncan-Andrade, 2004](#)). In the process of moving from familiar to academic texts, the analytical tools that students develop transfer from a known domain to a new area of learning. Such a pedagogical approach that acknowledges and values popular culture translates in classroom practice into the admittance of a wide range of possible

semiotic resources, from music and lyrics to symbolic icons and language play, which students use as they design new texts. In the three examples below, from science, English, and math classes, respectively, we examine how students make use of this range of semiotic resources to create their own meanings in hybrid texts.

In the science class from which the first text (Fig. 1) is taken, at a middle school in a low-SES community, the assignment had been for students to demonstrate that they understood the terms, concepts, and processes of the human nervous system. Typically, the unit would translate into classroom activities of reading the textbook chapters on circulatory and nervous systems then answering a series of questions at the end of each chapter. In the science classes we observed in the laptop schools, however, such a decontextualized textbook approach was rarely practiced. Instead, students engaged in hands-on activities ranging from heart monitoring and using digital microscopes to, as we will demonstrate, creating hybrid texts.

The hybrid text this second-generation immigrant student created connected her interest in the popular hip hop artists Usher and Chili with an academic science unit on the human nervous system. As she drew on both the romance stories of music stars and the core science text, she explored academic knowledge of human impulse control by applying it to a real-world scenario of heartbreak and deceit. In the text, written from a third-person perspective and dedicated “to all the broken hearts” the student chronicles a fictitious account of a break-up between Usher and Chili. The narrative depicts Chili as a strong female character whose teacher assigns her work on a project, on the nervous system with her slacker boyfriend Usher. There are a number of jabs that Chili makes against her soon-to-be ex-boyfriend Usher, who has cheated on her, and each of these is tied to the display of factual knowledge about the nervous system. Thus, in an accusation against Usher’s

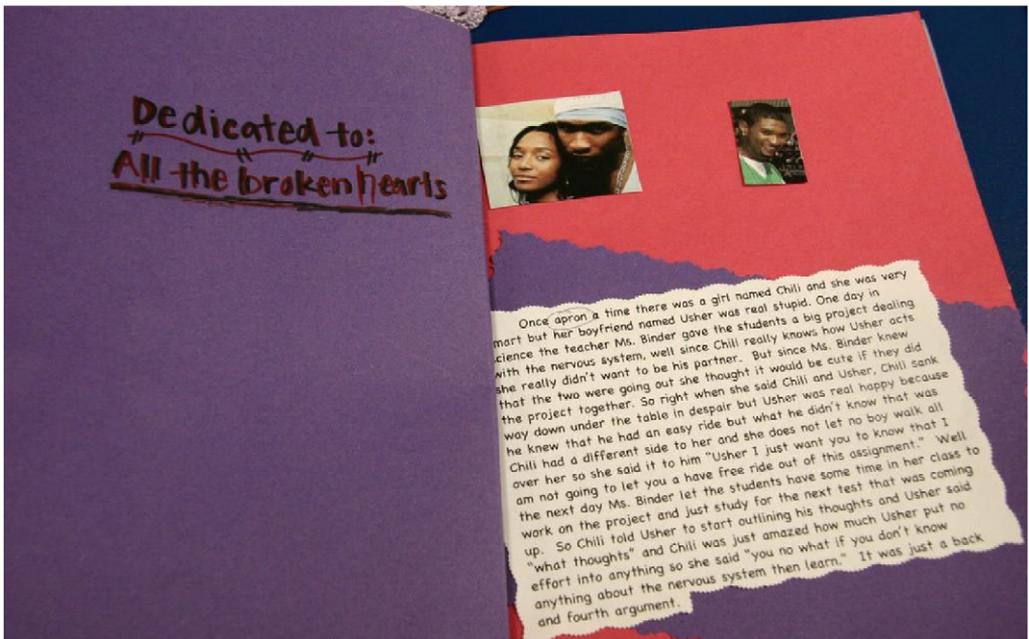


Fig. 1. Usher and Chili: example from a science classroom.

fidelity, the student links Chili's attack on her boyfriend to the somatic system, which "deals with actions that you control kind of like when you cheat on your girlfriend—don't you control that Usher?"

The final product was illustrated with images of Usher and Chili clipped and pasted off the Internet and packaged onto colourful pages of construction paper. In this text, the affordances of the graphic images serve not to move the narrative forward, but rather to display personally relevant cultural icons as an integral part of a school-based text. The personalization of abstract principles of the somatic and autonomic systems allows the student to depict Chili as a strong character in charge of her learning, even in the face of humiliation by her ex-boyfriend. She is the one who studies for exams, produces quality work, and has self-awareness of her learning: "So Chili told Usher to start outlining his thoughts and Usher said 'What thoughts?'" By weaving in science facts, the redesigned text transcends the mere reproduction of a typical romance narrative, and by situating the academic task of knowledge display within a battle of wills between two lovers, it serves as a vehicle for the student to align herself with the female protagonist who triumphs not through love, at least in this case, but through the power of knowledge.

The second multimodal text (Fig. 2) we analyze is taken from a seventh grade student in an ESL class at the same school from an assignment during a unit on *Beowulf*, an epic poem that is regarded as the oldest existing piece of writing from Old English, and often considered difficult to read even at the high school level. The original poem, translated from Old English into vernacular, is the tale of the heroic warrior Beowulf, who helps bring his people in southern Sweden 50 years of peace. The teacher asked the students to write or create a summary of the poem in whatever manner they liked, by using whatever



Fig. 2. *Beowulf*: example from an ESL classroom.

means of representation they thought most suitable to capture the essence of the poem. This Latino student chose a comic-book rendering of the two major battles of the poem, the first when Beowulf single-handedly slays the monster Grendel, and the second when Beowulf is killed as he tries to kill a dragon that threatens his defenceless people.

Typically, in the academic genre of summary, students must display that they have comprehended the text, that they can highlight only the salient points, and that they use their own words to do so. Summaries are typically not stand-alone pieces; rather, they often function as support for other kinds of writing: for substantiating a point in a persuasive paper or for providing background knowledge of a text in literary interpretation. In schools, however, summaries are often assigned to students as self-contained pieces of writing that function primarily as knowledge displays to demonstrate to the teacher that the student has read the text.

The author of this comic strip, however, re-purposes (Hull & Nelson, 2005) the typical written mode of summary by drawing on both the visual and written modes afforded by comic books. The visual rendering of the violence, for example, works to accentuate the thematic links between the brutality of the fights and Beowulf's heroic nature and his boldness. The left-right frame sequencing of the comic sequencing offers movement to the plot without the need to encode it linguistically. The climax of each fight scene builds up through the penultimate frame, and the tension is then released in the final frame, a convention typical in many Westernized comics. Language in this comic sequence does not need to function as the primary means of summary. Instead, it can be used to imbue the characters with personality. Thus, we see Beowulf as a warrior with a dry sense of humour who holds up the arm he has just ripped off of Grendel and muses about its effectiveness as a souvenir and a backscratcher. Beowulf is also shown to have a heroic flaw, cast as someone who, despite 50 years of peace for his people, is ready for some action, who claims, "I'm bored" as a set-up for his final deadly battle. Through the affordances of mixing the visual and written in this multimodal comic sequence, the student imposes his own imagined world onto the representational frame offered by the Beowulf narrative.

While the two examples above focus on transformation activities for demonstrating mastery of conventional academic content, our final analysis differs considerably. The last example provides a promising snapshot of how Millennial students are transforming their academic tasks from displays of competence to innovative and interactive explorations of curricular content. In a split-level third and fourth grade class of 8- and 9-year-old students at the gifted program for academically high-achieving students, a teacher presented the class with the challenge of helping prepare their second grade peers for the yearly high-stakes state-wide math exam. Equipped with laptops, wireless high-speed Internet access, multiple software programs, and an innovative teacher, the elementary school students, many of whom were non-native speakers of English, designed age-appropriate games targeted to review the types of math tested at the second grade level.

In groups of four, the students researched and created games and explanatory videos for the second graders. The pedagogy underlying the production of these educational video games looks very different from a traditional classroom. First, the students conducted independent research on the Internet and located the appropriate state level standards for second-grade math. In a typical classroom, the teacher would most likely have taken this step beforehand and then assigned groups of students to pre-selected math concepts. Second, the students collaborated in groups of four to discuss what types of activities would engage their target second-grade audience and negotiated a collaborative, multi-day

project plan to guide their decisions and regulate their time. Such self-directed project-based learning is rare in conventional classrooms, in which teachers often require that students follow a pre-determined sequence of steps. Third, students used both linguistic means (a direction booklet) as well as multimodal means (digital explanatory videos) to create age-appropriate instructional materials, a step that would often be completely overlooked in other peer-teaching scenarios, in which typically, older students are given pre-fabricated scripts to follow as they work with younger peers. Finally, throughout the process, these young children dealt with cognitively complex tasks of breaking down knowledge and re-packaging it, of transforming information from one mode to another, and of redesigning the pedagogy of math drills that typically inform test preparation in schools (Kress, 2003; New London Group, 1996). Such multimodal pedagogies help to position students not as recipients of knowledge, but rather, as Luke (2003) suggests, as students actively drawing on blends of new and old learning styles and practices.

What is noteworthy about each of these three projects is that hybrid activities are used not as a substitute for academic work, but rather as a way to draw students into academic work. In that respect, they differ significantly from the after-school project. However, to avoid overly romanticizing the hybrid texts and practices, it is worthwhile to reflect critically on the foregoing analysis. While we certainly view these first signs of multimodal composing in schools positively, we also acknowledge that very little is still known about how hybrid texts transfer back into mastery of conventionally valued ways of making meaning in academia. For example, although the story about Chili and Usher served the purpose of understanding scientific material by placing it in a meaningful context, the amount of actual academic content covered might not have merited the time necessary to create such an involved text. The comic strip activity, while certainly pedagogically sound as a transformation activity that allowed the student to interpret and make meaningful a classic piece of literature, does not necessarily improve the second language learner's ability to write a conventional summary. And while we are intrigued by the pedagogical innovation demonstrated in the mathematics example, it must be acknowledged that the students came from academically privileged backgrounds with a great deal of home-school bridges already in place. In short, we insist that a critical lens remain trained on any analysis of innovative hybrid texts and practices, but we nevertheless remain optimistic about their potential.

6. Conclusion

While laptop programs seek to use new technologies to focus on academic literacies, and after-school collaborations explore new media and new literacies as a way to connect to youth culture, they face some similar challenges as alternative learning spaces. Hull (2003) describes these tensions as, first, the need to provide students with access to technology tools and with the people and practices that will support the use of those tools, but to do so in ways that do not “domesticate youth culture” (p. 233). For example, it would be counter-productive to evaluate students' hybrid literacy practices only against the potential of such practices to raise traditional test scores, without taking into account that current standardized tests fail to adequately measure the broad range of literacy required for 21st century life. Second, the adults involved in these technology programs must be careful not to “romanticize” (Hull, 2003, p. 233) youth culture as they discover the wide creative potential that technology can help unleash. Youth are vulnerable to consuming culture

uncritically, to succumbing to the many packaged stereotypes available through new media, and to relying on familiar formulas for self-expression and discovery.

Based on our research and on findings from recent work on multimodal texts (see, for example, Hull & Katz, 2006; Hull & Nelson, 2005; Kress, 2003; Warschauer, 2006), we argue that hybridity can be a useful construct for helping connect students to academic literacy. Students need to have their work received by a supportive yet analytical audience that can offer constructive criticism while holding the writers/producers to high standards. Shifting to a new medium does not in and of itself improve the quality of student work, much less miraculously solve students' broader educational problems, including, for too many US students, below-basic proficiency in reading and writing. What the medium affords are opportunities for learning that differ depending on the demands of the context. In some contexts, such as an after-school program, spending 90 min editing a briefly-shown image can be a highly engaging way of perfecting a multimedia production, but in a school context, spending such time could also be viewed as a diversion from the time and effort needed to sharpen a written text.

In balancing these tensions, educators face the challenge of reconnecting students to academic learning in ways that create authentic bridges between the literacy and communicative practices of youth culture and the challenging requirements of academia. In schools, the paths for crossing these bridges are laid primarily by teachers who must understand literacy as a social practice, and in after-school centres by adults who must view themselves as students' allies. Those working with youth must be attuned to the disconnect students often perceive between many of the academic tasks asked of them at school and the real-world communicative and integrative problem-solving they engage in outside school. Teachers must be willing to take on roles as innovators in the world of new media and new literacy.

As indicated in the examples highlighted above, teachers, the principals who back them, and the personnel in after-school settings who support schools' efforts, can work together in fostering multimodal pedagogies that allow, and embrace, hybridity in students' texts and practices. The design and implementation of such pedagogies requires time, vision, courage, and confidence, not only in the transformative potential of new media and new literacies, but more importantly in the students who draw on these multiple resources to forge new meanings in the still-to-be charted terrain.

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