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Past is prologue: Teachers composing narratives about digital literacy

Kory Lawson Ching [a,*], Cynthia Carter Ching [b]

[a] *Assistant Professor of English, San Francisco State University, 1600 Holloway Avenue, San Francisco, CA 94132*
[b] *Associate Professor of Education, University of California, Davis, One Shields Avenue, Davis, CA. 95616*

Abstract

This study examines the technological literacy autobiographical narratives (TLANs) written by 23 graduate students enrolled in a teacher-preparation course, Teaching Writing in a Digital Age. The purpose of this research was to understand the meanings and values these future composition teachers ascribed to technological literacy in their own past histories, as well as potential sources of reluctance or resistance to engage technological literacy in the teaching of composition. Findings from these TLANs suggest that participants' past experiences with technology in school were often less compelling than extracurricular motives for using technology, such as social contact, playful experimentation, and the pursuit of existing interests. The article also explores the TLAN as a pedagogical activity and its potential for helping future instructors realign their orientations toward digital literacies.

Keywords: Technology; Literacy; Narrative; Teachers

1. Introduction

Many of today's undergraduates have grown up immersed in myriad forms of digital media, bombarded with information and visual images, and ubiquitously connected to whomever or whatever they desire. Yet the future they inherit will require more than familiarity with the media that surrounds them. As Henry Jenkins (2009) asserted in *Confronting the Challenges of Participatory Culture*, "We are moving away from a world in which some produce and many consume media toward one in which everyone has a more active stake in the culture that is produced" (p. 12). Yet, Jenkins argued, so-called "digital natives" still experience gaps in their awareness of, and critical reflection on, the media that surround them, so we cannot assume they will learn how to contribute, either successfully or ethically, to a new production-oriented culture on their own. As Stuart Selber (2004) noted, a great deal of college-level technology education takes an "instrumentalist" approach by focusing on the development of technical skills. In general, such courses fail to help students think "critically, contextually, and historically about the ways computer technologies are developed and used within our culture and how such use, in turn, intersects with writing and communication practices in the classroom" (p. 9).

Though composition instructors may be well-positioned to help bridge these gaps, instructors may not easily embrace or identify with this position. Existing allegiances to alphabetic literacies can result in strong resistance to new media and technological literacy in the composition classroom (Selfe, 1999). One approach to address this cultural divide has been to make explicit arguments to instructors about the importance of technological literacy to the future success of students. Yet this training approach, if it is not tied to existing beliefs surrounding technology and pedagogy, can also

* Corresponding author. Tel.: +415 338 2264; fax: +415 338 1955.
E-mail addresses: klching@sfsu.edu (K.L. Ching), ccching@ucdavis.edu (C.C. Ching).

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create resistance in new instructors. Barb Duffelmeyer (2003) found that when new composition teaching assistants were asked to write reflectively about their experiences being trained to teach in a computer lab, they revealed that the all-positive attitude toward classroom technology in training conflicted with their existing, more skeptical perspectives. Thus, the resistance Cynthia Selfe (1999) described may not result exclusively from a lack of skills or awareness of the value of technological literacy, but may also be rooted deeply in the past experiences and habits of mind of instructors.

Instructors are often the focus of policy and research efforts toward increasing technology integration across the educational spectrum, yet research studies find that classroom practice often falls far short of the ideal (Culp, Honey, & Mandinach, 2003; Salomon, 2002; Vrasidas & Glass, 2005). Toward this end, much federal funding over the past decades, including the National Fund for the Improvement of Post-Secondary Education (FIPSE) grant program, has been devoted to increasing instructors' technology skills and equipping post-secondary classrooms (Johnstone, 2005). Yet hopes that a new "net generation" of instructors, with their early and continuous life experiences as users, would automatically imbue their teaching with sophisticated and ever more current technology-rich activities have largely not materialized (Brill & Galloway, 2007; Collins & Halverson, 2009; Cuban, 2001).

Why not? We argue that part of the problem is how we prepare instructors. Though there is scant literature in the field that specifically examines how we prepare future composition instructors to integrate technology (e.g., Hewett & Ehman, 2004; Krauthamer, 2002), what little there is suggests a pattern consistent with findings on campuses as a whole, wherein a few stand-out instructors leverage online environments and digital media in myriad ways, while most others only employ course management websites and slideware (Brill & Galloway, 2007; Schubert, 2011). Predominant approaches to educating faculty and instructors about technology integration tend to focus on either skills training or encouraging shifts to a more student-centered pedagogy, hoping that student-centered technology use will follow (e.g., Clyde & Delohery, 2005). But both of these strategies rely on a unidirectional flow of information from trainer to trainee, and neither engages instructors as "whole persons" (Ching, Basham, & Pianfetti, 2005) with relevant life experiences to bring to the table where technology is concerned.

Composition scholars have long advanced critical technology-infused pedagogies as a means toward greater student agency and autonomy (e.g., Hawisher & Selfe, 1991; Ohmann, 1985), but after several decades we still know little about what composition instructors bring to the table: the nature of their existing technological experiences, and, more importantly, the enduring meanings of those experiences that carry forward into current practices. Our approach is to start with stories. In a Master's-level elective seminar, Teaching Writing in a Digital Age, taught for future community college writing instructors by the first author, students compose autobiographical narratives focused on their personal histories with technological literacy. This "techno-literacy autobiographical narrative" (or TLAN, for short) is an important step in helping future teachers reflect on their own experiences with technology, as well as the relationship between alphabetic literacies, to which most already owe strong allegiance, and the digital literacies about which they often seem less certain. Just as composition instructors frequently ask undergraduate students to compose literacy narratives as a means of cultivating more critical understandings of literacy in their lives, so too can the writing of TLANs serve a similar function for future teachers. It provides an opportunity for individuals to reflect on the often complex and conflicting meanings technological literacy holds for them.

But read collectively as a corpus of data, these TLANs also make it possible to gain valuable insight into the histories and existing values toward technology that might influence instructors' practices of teaching technological literacy. So, while the process of composing TLANs may help individual future teachers reflect on their own experiences, it is the aggregate patterns of experience and meaning found in these narratives that might help our field make sense of new instructors' resistance to technology in educational settings, and provide potential strategies for overcoming such resistance that are meaningfully grounded in instructors' lives.

This article presents an analysis of TLANs from two cohorts of future instructors. First, we describe a critical comparison of formal and informal contexts in which their previous experiences take place. Second, we examine the nature and depth of these experiences, building on a framework developed by Mizuko Ito and colleagues (2009). And third, we present an analysis of the reported and re-storied meanings of these experiences, as well as the (sometimes problematic) stances toward digital literacy that these meanings comprise. Taken together, our inquiry reveals some surprising findings about future composition instructors' technology histories and suggests some critical changes in the ways we prepare them to engage digital media with their students.

2. Framework

For over two decades now, composition teachers have been asking students to read and write literacy narratives, typically in order to help students engage critically with their own experiences of literacy. As Mary Soliday (1994) put it, "literacy narratives become sites of self-translation where writers can articulate the meanings and the consequences of their passages between language worlds" (p. 511). In other words, they are used to help students consider what Soliday called "the distance between an earlier and a present self conscious of living in time" (p. 514). More recently, some have begun to encourage undergraduate students to consider the role of technology in their literate histories (Duffelmeyer, 2002; Selfe, 2004). But, while formal, written literacy narratives are often employed as a pedagogical tactic in writing instruction, the practice of self-narration is in fact far more pervasive beyond the literate experience. As Jerome Bruner (2004) argued, "[w]hile the act of writing autobiography is new under the sun—like writing itself—the self-told narrative is, by all accounts, ancient and universal" (p. 695).

As humans we tell stories, not only to others but to ourselves, about ourselves, and these stories become real—more real, perhaps, than the phenomena being conveyed. Numerous sociocultural and identity scholars assert that self-told stories are not only the means we use to present our identities and life histories to others, but that they are also the primary developmental building blocks of identity itself (Fivush & Bruckner, 2003; Sfard & Prusak, 2004). Bruner (2004) suggested that "[t]here is no such thing, psychologically, as 'life itself.' At the very least it is a selective achievement of memory recall; beyond that, recounting one's life is an interpretive feat" (p. 693). As such, narratives are not static representations of the past; instead, as Elinor Ochs and Lisa Capps (1996) described, "personal narratives about the past are always told from the temporal perspective of the present" (p. 25). Further, Dan McAdams (2003) argued that self-story is prescriptive as well as reflective, in that "autobiographical memory helps to locate and define the self within an ongoing life story that, simultaneously, is strongly oriented toward future goals" (p. 194). For future teachers in particular, when constructed and conveyed within the context of training for instruction, narratives of the self-as-learner can have a powerful influence on their own philosophies of teaching (Rodriguez & Cho, 2011).

But where literacy or self-as-learner narratives are often meant to help students bridge the gap between past and present identities, the techno-literacy autobiographical narratives (TLANs) discussed in this study are meant, among other things, to provide future composition instructors an opportunity to expose and begin to resolve the ongoing tensions between alphabetic and digital literacies in their own lives. As a pedagogical activity, these narratives create a space for what Ochs and Capps (1996) referred to as the "therapeutic function of narrative activity" (p. 29), helping future instructors work through apparent anxieties and uncertainties about the changes represented by new literacies. Beyond their pedagogical purpose, these narratives also open a window for researchers into the lived experiences of future teachers that impact their engagements with technological literacy, both in and out of the classroom.

3. Methods

The techno-literacy autobiographical narratives are both snapshots of the technological literacy experiences of these future teachers, and reflections of the meanings they ascribe to those experiences. Our research strategy, then, is dually focused: a descriptive approach to capturing the nature of remembered experiences, and an interpretive approach to finding the constructed and re-constructed meanings that endure. In other words, this study attempts to address the following questions: What experiences have these future teachers of composition had with technological literacy? What meanings do they ascribe to those experiences? How do future teachers' experiences engender roles, attitudes, or behaviors that influence their teaching practice? How might reflection on their experiences cultivate productive stances toward technological literacy?

3.1. Participants and setting

This study was conducted in a graduate-level seminar at a large public university in the western United States. Students in this seminar were enrolled in either a Master's degree program in English with a concentration in composition studies, or in a related Master's program while pursuing a certificate in teaching composition. Both the composition MA program and the certificate program were designed primarily to prepare students for careers teaching writing at the college level, though some graduates go on to enroll in PhD programs in rhetoric and composition. Most graduates of the programs pursue jobs teaching writing in area two-year colleges. Because of the typical career trajectory of its

graduates, both programs emphasize pedagogical methods, though there are also courses in composition theory and research methods.

In the spring of 2009 and again in the spring of 2010, the first author taught an elective seminar, titled Teaching Writing in a Digital Age. This course had two interrelated goals. One was to help students explore the ways in which new and emerging technologies are shaping writing practices, both in relation to college composition and in society more generally. The other goal was to prepare future teachers of writing to respond to the changing literacy landscape with effective and coherent instruction. Along the way, students engaged with topics such as writing as a technology, new media studies, technology and identity, and read/write culture, as well as practices like blogging, wiki authoring, social networking, and gaming. One section of this seminar enrolled 13 students, and the other 15.

A number of the assigned texts in this seminar focused specifically on issues of identity, literacy, and technology, including Hawisher, Selfe, Moraski, and Pearson (2004) *College Composition and Communication* article, "Becoming Literate in the Information Age," and Selfe's (2004) chapter in *Writing New Media*, "Students Who Teach Us: A Case Study of a New Media Text Designer." Both of these texts came out of Hawisher et al.'s (2004) work collecting narratives of technological literacy, which they defined as "the practices involved in reading, writing, and exchanging information in online environments, as well as the values associated with such practices" (p. 678). Feeling that students in the seminar might benefit from considering their own personal histories with technological literacy, the first listed author of this article asked them to compose their own techno-literacy autobiographical narratives in the first half of the semester. The prompt for this assignment (see Appendix A) asked students first to use the interview protocol questions in Hawisher et al. (2004) to stimulate recollection of narratives or anecdotes from their own past experience. Then, they were to compose an essay that related one or more of these narratives in order to arrive at some larger significance or meaning of their experiences with technology and literacy.

3.2. Data collection and analysis

The data for this narrative study consists of the techno-literacy autobiographical narratives (TLANs) composed by students in the graduate seminar described above. Over two years, a total of 23 narratives were collected from participants. Students were not approached to participate in this study until after the course had ended for them, and therefore were unaware of the potential for their narratives to become data while they were composing them. Nevertheless, based as they were on Hawisher et al.'s (2004) interview protocols, these narratives comprise useful data for understanding participants' experiences with technological literacy and the meanings they ascribe to those experiences.

In accordance with Juliet Corbin and Anselm Strauss' (2007) prescription to ground a qualitative research approach within the structure of the data itself, analyses of the TLANs were guided by the forms of narrative found within the student essays upon our initial readings. One predominant feature of the TLANs we found was that they are all episodic, in that they focus on a series of salient moments from the narrator's life, told in roughly chronological order. Each of these essays, then, might be viewed as a collection of mini-narratives, each of which has its own point to make. However, the majority of them also contain what William Labov (1972) called a narrative's "abstract," or "one or two clauses summarizing the whole story" (p. 363). Consider this example, from the beginning of a narrative written by one participant, Kevin:

> I am neither a 'technology native' nor a Luddite. I grew up somewhere between the techno-savvy young adults of today and the technophobic generation to which my mother defiantly subscribes herself, in a time when print was still the main conveyance of information. Although technology proliferated in the periphery of my world, the digital literacies that (many of) today's youth acquire as native tongues are literacies that I had to acquire as second languages.

Kevin then went on to describe several moments in his experience with technology, like spending time in his high school's computer lab, playing games on his step-father's Commodore PET, working as a data-entry clerk, and keeping in touch with friends through instant messaging. But Kevin related each of these episodes back to the notion of technology as a "second language." For instance, after discussing his frustration with the Commodore, he wrote "I can still see the blinking green cursor admonishing me for not speaking its language correctly, challenging me to learn a new form of communication, to become computer-literate."

In this example, as well as in the larger data corpus, what might otherwise be viewed as a collection of loosely related events is instead rendered as a set of moments with a larger coherence. This is a key feature of narrative. Jerome Bruner (2003) argued that narrative "is coherence seeking and coherence guarding, eschewing dissonance and contradiction through highly developed psychic procedures" (p. 215). This view does not mean that contradictions are absent, but rather that they are typically smoothed over for the sake of consistency. This consistency is essential to preserve, as it represents a larger thematic meaning in the narrators' experiences. But we were also interested in compiling and comparing episodes across essays, particularly those episodes that contained common features or contexts, such as playing games in a grade-school computer lab, introductions to computing at home via a family member, using social media to communicate with distant friends, etc. So, in our analysis we found ourselves working back and forth between parts and wholes, between episodes we separated out and complete essays with their framing material intact. Like Jane Margolis and Allan Fisher (2002) in their investigation of life narratives from women in computer science, we attempted to negotiate "the tension between the integrity of our data as full portraits and the necessity of 'fracturing' the data into discrete elements so we could detect patterns across groups and categories" (p. 152).

The first type of fracturing we performed was to separate out and categorize episodes based on the contexts in which they took place. The two dominant categories that emerged for early experiences were either a school context or an out-of-school context, so we then compared features of these episodes within and across categories according to the nature of the activity, the actors involved (e.g., family members, friends, teachers), and the tone and rhetorical positioning participants used to describe these encounters. This first pass at analysis can be characterized as an attempt to describe the "what" of students' experiences.

The second type of fracturing involved looking at motives for activity and depth of engagement in narrators' experiences later in life, moving back and forth between episodes and whole essays, borrowing and building on a framework from Ito (described in the following section). This second pass at analysis can be described as more about investigating the "why" of the narrators' experiences with digital media.

Finally, we examined overall themes for cues to enduring meanings across experiences. In some cases this search for meaning was facilitated by participants like Kevin, who explicitly stated their stances toward digital media and reinforced this stance through thematically consistent episodes, but in most cases it required more interpretation by tracing themes and rhetoric within and across episodes and essays. Meanings were frequently embedded within episodes, so we treat meanings within these episodic analyses as well. The insights from each of these layers of analysis—contexts, engagements, and meanings—are described in the sections that follow.

4. Findings

In this section, we present our findings from the techno-literacy autobiographical narratives. We have organized this analysis according to broad patterns discovered in the data. Nearly all of the narrators mention the use of technology in their primary or secondary education, so we begin with an exploration of technology in school. Next, we look at the narrative representation of "catalysts," or people who played a key role in introducing narrators to technological literacy in informal settings. We then examine three sets of motives driving development of technological literacy. For some, the motivation to engage with technology is largely social; for others, motivation is found in a sense of play and experimentation with the technology itself; and, finally, there are some whose motives rest in already-existing personal interests. Lastly, we consider larger meanings or themes that narrators assign to their experiences with technology.

4.1. Experiences of technology in school

Perhaps the most overarching pattern among these narratives is that reported experiences of technology in school lacked an apparent sense of purpose. This is not to say, however, that these experiences are exclusively negative. Many narrators mention playing educational games on school computers, most notably *Oregon Trail*, in which players navigate the dangers of a 19th-century pioneer wagon train. Narrators' enjoyment of these games, however, is not linked to their apparent official function as learning tools. In the words of one participant, Brian, he and his fellow students "spent more time laughing about who in our party got dysentery than about any historical content of the game." Brian went on to show sympathy for his teachers at the time, but he also critiqued the lack of a clear objective:

> The teachers did their best, but in retrospect, they never appeared to really understand how to integrate the computer with everything else they needed to teach. The computer lab was a separate location, and other than learning to type, nothing we did there seemed like it would really matter to us later in life. It was a reward, a break from the drudgery of class learning that let us go and play games.

What Brian represented as missing at the time, then, is a sense of relevance, an intelligible connection between playing this game and anything that would "matter to us later in life." The game was framed instead as an alternative to school-as-usual, a frivolous thing apart, rather than a core educational experience.

This theme of the purposelessness of school computing is not limited to educational games. For our participants, even more serious computing endeavors, with ostensibly more relevance to the development of future marketable skills, seemed equally futile. Another participant, Willow, described her high school "programming" class in similar terms:

> These computers do not have pre-prepared programs. Working in pairs, we have to input the code ourselves. It's a process that holds no apparent usefulness or interest for us, but it beats doing algebra problems, so we input our code with good cheer.

This sense of programming as an alternative to the boredom of other school activities is also reinforced by Jennifer, who described signing up "for a junior high computer class (which focused primarily on BASIC) simply to get out of having to do P.E. for a quarter."

While programming may function in these episodes as a get-out-of-jail-free card for undesirable school tasks, in the larger story arcs it also holds no sway over other literacies that narrators are already devoted to. Two essays describe this contrast in fairly stark terms. Rob, who set himself up early in his essay as a kid who loved watching movies and writing short stories, said:

> In high school, I took a workshop on computer programming and learned the basics of Atari BASIC. I picked up the computer language fairly quickly; the teacher said I had an aptitude. But I couldn't see much use for programming, except to create a list of prime numbers, write my name in various ways across the screen, and make colorful patterns. So I went back to yellowed paper and the silver screen.

And Jared, a self-described science fiction enthusiast, pointedly articulated the profound irony in his own history with programming in the classroom:

> At school, I think this was 7th grade, we learned some BASIC and wrote some rudimentary programs consisting of things like "go- to" loops that filled the screen with the same line of text, over and over again. But the instruction, such as it was, wasn't connected to anything outside of the exercises we were doing. Nothing in that class gave me a sense of what computers could do or were used for, and considering I was reading science fiction, I think that's saying something about the curriculum that I found it boring and uninteresting.

What is missing for these narrators is a sense of meaning or possible futures: how programming activities were "connected to anything outside" or represented "what computers could do or were used for." In both these episodes, programming is framed as not only dull or pointless, but as something that utterly fails to seize the imagination of narrators who were instead captivated by stories—movies, short stories, and, somewhat ironically, science fiction.

Granted, one might argue that much of K-12 schooling lacks meaning in similar ways. Jeannette described how school actively destroyed any interest in computers she might have had:

> Like it did with most any other subject, school managed to effectively destroy any interest in computers that I might have otherwise developed. We would type a bunch of "if, then, go to" stuff, for what purpose I was not sure. There was no application to any sort of life or real world practice. And, as a 7th grader, I did not yet care about a distant, nebulous career.

These sentiments are typical and, sadly, fairly apt. To a large extent, standardized school curricula are based on a "just-in-case" model of learning, wherein content is meant to have future payoff rather than current use value, and so the immediate relevance of, for example, doing algebra problems or memorizing state capitals is not apparent to learners (Collins & Halverson, 2009). Yet there is a strong contrast between the pervasive and influential role of technology in the modern world and the peripheral, almost incidental role in schooling it had for these narrators.

4.2. Catalysts introduce technology in informal settings

While our participants write that their K-12 teachers were mostly unable to convey a sense of enthusiasm or relevance surrounding technology and its prescribed activities, early experiences with computers in out-of-school contexts were, literally, an entirely different story. Narrative episodes that describe early experiences with computers at home, either participants' own homes or someone else's, are richly populated by individuals who enable or facilitate some kind of breakthrough in the narrator's relationship with technology. Megan Finn (in Ito, 2009) described such individuals as "mentors" who "support learning about technology in informal settings" by providing initial encounters and continuing opportunities (p. 58). Bonnie Nardi and Vicki O'Day (2000) laid out a model of information technology ecologies and refer to such people as either gardeners, who create and support a physical infrastructure, or gurus, who provide vision and innovative ideas. In the narratives we collected, early supportive individuals are often described as being responsible for sparking an ongoing process that continues after their intervention, almost like the start of a chemical reaction. As such, we have termed these individuals "catalysts."

In some cases the role of the catalyst in our participants' stories is fairly straightforward: an adult, usually a parent, purchases the technology, brings it home, and sets it up. Mitch described his first encounter with computers as follows:

> At the age of 6, my father brought home a Sanyo MBC-555. It had a monochrome monitor, 2 5.25" floppy drives, 256k of RAM, and an 8088 processor running at a whopping 3.58 mHz. This was not a supercomputer, but neither was it specialized. After powering it on and booting it to a usable operating system, I could put in various floppy disks and get it to do a variety of things. I could play text adventure games, use a word-processor, learn to touch-type, even read books.

Interesting to note about Mitch's description here, is that he switched mid-paragraph from his father being the agent of the story who purchased the computer, to himself as the agent who could "do a variety of things." As such, in his narrative, the catalyst serves to provide opportunities for new experiences but then allows Mitch to take advantage of them independently.

In other narratives, though, the catalyst plays an even more active role. In some cases, this role is both facilitative and ideological, in that a catalyst is represented as articulating the value and importance of computing technology, something that was largely missing from school experiences. For example, Brian wrote about how his uncle convinced not just him, but also Brian's technology-resistant mother, that having a home computer was crucial:

> My mother's luddite tendencies were renowned among our family and friends, and we did not get a microwave, cable TV, CD player, or any number of other technological amenities until long after everyone else had bought them. We were light-years behind the Joneses. However, due to the influence of my uncle Ted—an elementary school teacher—we had a computer from when I was very young. One of the most effective tactics he used to convince my mom was arguing that in the near future, computers were going to be very important for everyone, and it would be good for me if I knew how to use one.

Granted, the "near future" being imagined here might be just as nebulous as it is in the school contexts described earlier, but this articulation of the value of technology hits (quite literally) closer to home.

This familial idea that computers "were going to be very important" comes through strongly in many other narratives as well, even where personal ownership of technology required financial sacrifice for some participants' families. In fact, technology is linked in these stories to a sense of agency, social mobility, and economic imperative. Elena described her first personal computer as follows:

> The computer coming into our lower-middle-class, two-person family in 1997 signaled something that my mom and I often talked about, but never regarding technology. She often expressed, as many mothers do, that she wanted my life to be different than hers. Although my mom may not have always been able to help me with my homework, she bought the computer she could barely afford to ensure that I did graduate from college.

Here, the purpose of technology for Elena is not tied to a teacher's assertion of "some nebulous career," as in Jeanette's earlier description of school, but rather to her mother's heartfelt desire for Elena's economic mobility. Financial concerns, however, prompt another student, Randy, to take issue in his essay with broad characterizations of the digital divide:

> I'd also like to point out that my family did not have much money, but we had an affordable computer even back in the late 1990s before Moore's Law revealed itself in more dramatic ways in the 21st century. My father helped other parents in my apartment complex get used computers as well. I think it is a misunderstanding to think that those in the lower income brackets are not exposed to computers because they can't afford them.

In his narrative Randy argued for the power and pervasiveness of home computing, regardless of socio-economic status, and thus positions his own low-income father as not only his own catalyst but also an important source of support for neighbors and friends.

Consistent with Finn's description of mentors whose role is to simply create opportunities (2009), sometimes the catalyst does little more than provide some point of contact with technology. Early in her narrative, Willow described encountering a computer modem for the first time in her life, thanks to the intervention of a family friend:

> I am a child, perhaps seven years old, and my mother and I are visiting her best friend, Katherine, in her apartment. Katherine, a woman obviously, is a computer programmer and has her own computer at home. To keep me entertained and out of the way, she sits me down in front of the screen (just as so many parents set their children down in front of television sets) and gets me playing an online game. She places the headpiece of the telephone in the cradle of a dial-up modem in order to connect me to the mainframe computer on which the game resides on the other side of town. It looks so funny, like the phone is talking to a machine, which it is!

Here Willow not only described a sense of childhood wonder at the idea of machines talking to each other, but also reflected on the rarity of her introduction coming through a female computer programmer in the late 1970s. Yet, the episode ends on a note that undermines both the novelty of the modem and the efforts of the catalyst, as Willow said, after describing the game, "I think the modem is kind of nifty, but the game isn't as satisfyingly interactive as interrupting my mother's conversation with Katherine, so I drop the game and join the conversation." This coda to the modem episode represents a theme that re-occurred throughout her essay: Willow's distaste for interacting with machines caused her to abandon potentially promising technology experiences that she ultimately found dull or lifeless.

Willow's overall narrative thus starkly demonstrates an important finding that applies across our collection of narratives, which is that experience does not predict meaning. We cannot assume that early exposure to networks, or programming, or troubleshooting will somehow automatically yield individuals with strong technical skills or positive attitudes toward technological literacy. What is a powerful and door-opening encounter for one participant can be utterly uninspiring to another, though the situations seem similar. Meaning is key.

4.3. Motives for engagement

In narratives, motives matter. As Dan McAdams (2003) put it, "stories are fundamentally about the vicissitudes of human intention organized in time" (p. 190), and Jerome Bruner (2003) agreed that narratives are "teleological, replete with desires, intentions, aspirations, endlessly in pursuit of goals" (p. 214). Stories are, by and large, about wanting something. In her recent study of youth engagement online, digital ethnographer Mizuko Ito (2010) found that motives for participation in social media spaces could be described as either "hanging out," "messing around," or "geeking out." In the narratives we collected, motives for using technology fell into one of three roughly comparable categories: social motives, playful experimentation, and interest-driven motives. It is worth noting, then, that our narrators ascribed similar meanings to their own engagements, though the technologies they describe are in some cases significantly older.

4.3.1. Social motivations

In several narratives, technology did not become useful or desirable until it enabled forms of social interaction that were otherwise difficult. Vanessa, for instance, did not have her own computer until she moved to the United States where, she wrote, "being thousands of miles away from home and living on my own, the Internet provided a way for me to communicate with friends and family." Likewise, when Kevin moved to a new city, he signed up for AOL and found that "some of my friends back home were already 'on-line.' It was so much more exciting to send messages instantaneously— well, nearly instantaneously." Technology provided a means, then, for maintaining important social ties.

In some narratives, friendship-driven uses of technology came to redefine what technology means, and what friendship means. Sonya described the shift she felt with the advent of web-based instant messaging:

> It wasn't until the Internet was born that digital technology seemed to matter. Computer technology didn't change overnight, but when it did, it changed rapidly and it changed my lifestyle. . .. Even chatting with friends on school nights was different: that term itself changed too. Chatting no longer meant talking on the phone; it meant instant messaging online.

This process culminated for Sonya, then, in the literal redefinition of an activity ("chatting") that was once attached to one technology, but then became most associated with a new one. Instant messaging took on importance not because it was new, or because it held some promise of future utility, but instead because it enabled and facilitated an already-existing social need.

While Ito used the term "hanging out" to describe maintaining relationships that mostly originate in face-to-face contexts, in our narratives we also found social motives for creating connections that originate in digital environments. In this episode, Randy explained how his access to instant messaging in chat rooms provided him opportunities for making connections that he would not have otherwise had:

> I don't remember how, but I found out about Yahoo! Chat, and I went on frequently during lunch time. Slowly, I became addicted to chatting with people who I never really knew from around the world. Luckily, my dad had a computer at home and a painfully slow internet dial-up. Every day, after school, I would go on Yahoo! Chat for hours, and I learned how to type better and weave narrative stories when chatting with anonymous people on the web. In a perverse sense, other people chatting became my clique of peers.

It is tempting to read this episode as emblematic of a problem. Even Randy presented this narrative in somewhat ambiguous terms, such as when he referred to becoming "addicted" to chatting, and his characterization of those he meets as "anonymous." However, it is also clear from this description that the ability to chat online was important to Randy; that his emerging technological literacy provided him with occasions for social interaction that were not readily available (or perceived as available) to him in face-to-face contexts.

4.3.2. Play and experimentation as motives

Social interaction is not the only motive that drives engagements with technology in the narratives. Some participants described an approach to technological literacy characterized by a sense of play and experimentation. These representations correspond roughly to the "messing around" category in Ito's (2010) framework, associated as it is with "experimenting and play" (p. 57). These experiences of working with technology were uniformly rendered in the narratives in positive terms. In Annabeth's narrative, part of the motivation for developing technological literacy comes from playing computer games:

> My family bought a Tandy PC and my siblings and I spent countless hours glued to the screen, playing interactive games like "King's Quest," "Gold Rush," and "Sim City". . .. Each game had its own mythology, set of rules, and literate practices, and unraveling the mystery was the fun. I learned some of these rules by reading the manual, some by watching my siblings play, but mostly I learned by trial and error, by actually playing the game and seeing which decisions led to the perilous death of my pixelated character and which led to the next screen, the next adventure.

Unlike other narrators who describe playing *Oregon Trail* in school, Annabeth did not seem to need to interrogate the purpose of playing these games. They are represented not as a means to an end, but as an end unto themselves. Moreover, what she found enjoyable about those games is that they afforded opportunities for complex problem-solving. As Ito explained, "messing around" with technology often involves "low stakes attached to making mistakes or trying multiple scenarios to solve a problem" and "a great deal of trial and error" (p. 58), the very terms Annabeth used to describe what she did.

It is important to note, though, that motives of play and experimentation are not limited in these narratives to games. In some cases, the technology itself provides the impetus for "independent exploration," as Sonya put it in her narrative:

> I read for fun and I played on the computer for fun. I had no explicit training in either literacy. I spent time around computers, but didn't know (or care about) how to use them. . .. I was not learning how to use the computer in school. I was learning through independent exploration, driven by a curiosity, convenience, and praise. Ultimately, the computer was there, so I used it.

One interesting feature of this episode is the way Sonya positioned her "exploration" in direct contrast to what was (or rather was not) happening in school. As with Annabeth's narrative, Sonya's was also not especially future-oriented. That is, she did not represent herself as especially concerned about the future implications of her use of technology. Instead, she described her engagement with technology as a function of presence ("the computer was there, so I used it") and curiosity.

Sonya did not specify what made her "curious" about computers, and perhaps this is telling. It was apparently not any particular activity with the technology that commanded her interest, but instead the technology itself. This same theme emerged in Kevin's narrative, as he described his early encounters playing games on a Commodore PET purchased by his stepfather:

> Although the games the new computer offered were nothing compared to the television video games I enjoyed, there was a certain game, a playfulness, in learning to work the Commodore, a certain fun in the exploration of this strange new technology.

As with Annabeth, Kevin's experience began with playing games on the computer, but then he recognized that the process of becoming technologically literate was enjoyable in itself. Interestingly, Kevin carried this attitude of playfulness over into his school-based encounters with computers:

> Although I was unsure of their purpose, I experienced a thrilling curiosity and sense of just-plain-fun in tapping the keyboard and waiting to see how the computer would respond. I could never have imagined then that those machines would evolve to replace the card-catalogs and typewriters, to become a tool I now consider necessary for daily life. And looking back, I think my transition to technology, to digital literacy, came easily simply because it was fun.

Like many other narrators, Kevin admitted not understanding the purpose of computers in school or any relevant application to his future. However, Kevin's narrative was unusual for the way he wrote about valuing the technology itself, despite the context. What is salient here is an overarching attitude, a stance of playfulness and curiosity that purportedly stretches across all his encounters with technology.

Such positive experiences of playfulness and experimentation, even across contexts, help us understand the importance of motivation in the meanings and values people ascribe to practices. Narrators who ostensibly encountered similar experiences in school, for instance, can nevertheless have widely divergent perceptions of those experiences. Where others saw it as purposeless or, at best, a "break" from regular school, Kevin saw an opportunity to tinker with a technology he did not yet fully understand. Among the narratives we collected, it was those who reported approaching technological literacy in this way who seemed to have the most positive experience with it. Once again, it seems that the objective nature of experience is less important than the meaning(s) ascribed to it.

4.3.3. Interest-driven motivations

The third main set of motives represented among these narratives centers on using technology to support or sustain an existing or emerging interest. The point of technology in such episodes is neither social contact nor playful experimentation, but instead the pursuit of a meaningful activity. For example, Rachel goes to considerable lengths in her narrative to present her current identity—that of a feminist and environmental activist—as a consistent thread running through her experiences with literacy and technology. She began her narrative with a childhood reading of *The Lorax*, then transitioned to creating posters about the environment, and then, in college, using social media to organize and advertise protests and other activism-related events. Here is how Rachel ended her narrative:

> These last three years of undergrad merged my academic literacy and new media literacy under a common thread: activism. The interest that was conjured by reading *The Lorax* years ago continued through my adolescent and adult life. Creating, on Microsoft Word and on Facebook, was charged with more than interest in grades; for me, composing became a venue for enacting social change in a small college community.

Throughout her narrative, Rachel is careful to keep this identity as an activist in the foreground, and though she discussed ways in which she became proficient with technology, it is represented as meaningful for her only to the extent that it relates to her activism.

Brian wrote about a number of ways in which he pursued technological interests outside of school, including becoming his family's "computer guru," maintaining a Geocities website, playing video games, and downloading

music. Because of his website, Brian experimented with manipulating images in Photoshop, and became proficient enough at it to think of it in terms of a potential career path:

> Watching the emergence of high-quality CGI in movies and witnessing the rise of Pixar, I started to think I might have a future doing graphic work. It helped me get a summer internship at a small local software company, and I entered college thinking a future at Industrial Light and Magic might be in the cards.

For Brian, what started out as play and experimentation with images ended up as something more—what Ito might call "geeking out." As Ito defined it, "this genre primarily refers to an intense commitment or engagement with media or technology, often one particular media property, genre, or a type of technology" (p. 65). Moreover, it was not just facility with Adobe Photoshop Brian was interested in, but the status that came with his newfound knowledge, the ways that "I understood the coupled visual and lexical vocabulary of the internet, I got the references people made to video games, and I felt at ease because of it." Brian was establishing a kind of "geek cred," which, according to Ito, "involves learning to navigate esoteric domains of knowledge and practice and being able to participate in communities that traffic in these forms of expertise" (p. 67). Brian saw his website, his use of Photoshop, and his understanding of Internet culture as practices that helped him establish status, or, as he put it, "a measure of my social cache instead of a badge of shame."

This last point about community is important. Geeking out is not an isolated activity, despite popular cultural perceptions of "geeks" as socially-awkward loners. Another narrator, Martin, pushes this theme further by tracing his evolving participation in media-sharing communities. His narrative describes his movement from early experiences downloading music and other media to his eventual membership in a "private torrent tracker" or "darknet," which is basically a closed peer-to-peer file sharing network. What started as an interest in finding free (but not especially legal) sources of media led, in Martin's case, to membership in a community of like-minded individuals. Although his interest in file sharing brought him into a world of discussion board conversations and even secret Santa exchanges, his participation was still primarily "interest-driven." That is, unlike the writers who use technology to keep in touch with friends and family, Martin maintained social connections in order to pursue his interest in file sharing. In their particular interest-driven motivations, wherein digital media *is* the interest, narrators like Brian and Martin are somewhat unusual. As Ito found in her ethnographic study of youth participation, friendship-driven practices with technology are generally much more common than interest-driven ones. That is, more people "hang out" than "geek out" with technology.

4.4. Reflections, conversions, and imagined futures

Although nearly all of our participants wrote positive episodes within their narratives that were about enjoyment or utility value, and a few, like Brian and Martin, even describe being fascinated and captivated by new horizons of "what was possible," most of the narratives we collected display some significant ambivalence about technology. This fact might seem odd, since these narratives were written by graduate students in an elective seminar on teaching and technology—clearly they had some interest in the topic. But it is important to understand that many of these future teachers harbored anxieties and uncertainties about the place of new media in composition instruction, especially where they felt the comforting rug of traditional, alphabetic literacies was being pulled out from under them. Some of this ambivalence came through explicitly, for example, in the way Willow, mentioned earlier, ended her narrative:

> Growing up, I never saw computers as something that wasn't for me because I was a girl; rather, computers were for people who liked machines or automation, which I didn't. I liked books. I still do.

Most narratives, though, do not end with this kind of outright rejection; instead, they represent skepticism about technology that undergoes some kind of partial transformation. Richard, for example, began his narrative with a childhood perception that "computers were not for me," but then ended with how blogging has helped him "[break] through a couple of decades of writer's block." Bonnie wrote about her experiences in a required information technology class in terms of "boredom, disinterest and frustration," but then related how playing video games with her boyfriend changed her perception of computers:

> We spent our weekends trying to figure out how to outsmart grave robbers, keep Indy safe and, while the graphics were still bitmapped, black and gray, we were in a new world together and the laptop finally achieved a personal relevance.

While not quite on par with Augustine's *Confessions*, moments like this nevertheless represent a kind of conversion narrative. Perhaps this is nothing special. Bruner (2003) asserted that, "one rarely encounters autobiographies . . . that are without turning points" (p. 222). And yet, these are the moments where writers of these narratives are being most reflective, where they are trying to weave a coherent story from many potentially conflicting threads.

It is this reflective quality to the narratives that we believe can have the most potential impact on the role of digital literacies in the pedagogy of these future instructors. Some narrators enact a kind of reflective conversion in the very process of telling their stories. As Carolyn Ellis and Arthur Bochner (2000) articulated, "[s]tories show us that the meanings and significance of the past are incomplete, tentative, and revisable according to contingencies of our present life circumstances, the present from which we narrate" (p. 219). As an example of this revisable meaning, here is how one narrator, Laurie, described her junior high keyboarding class and its subsequent value:

> Looking back, at the time I couldn't have imagined anything more ridiculously boring than repeating the depressing of a single finger against a single key to type all the letters of the alphabet over and over and over again as the placement of keystrokes was embedded in my brain. Now, however, I associate the experience as being incredibly emancipating. Even while I type this paper at the same speed as my thoughts pass through my mind, I ponder how indispensable learning to type by touch has been to me professionally, personally and, definitely, academically.

This back-and-forth that Laurie engaged in, between "at the time" and "now," resulted in a new meaning for an old experience. The stultifying keyboarding class that she had experienced in adolescence is re-framed as crucial to her later expressive ability. These meanings are so malleable through reflection that Laurie represents them as shifting even as she composes her narrative.

Yet conversion, theologians might argue, is less meaningful unless is brings with it changes in action as well as conviction. Very few narrators engaged in a back-and-forth that included not only bringing the past into the present but also a sense of imagined futures; that is, their own futures as composition instructors. One who did was Annabeth, a narrator whose unusually positive computing experiences in school were created by high school teachers who offered technological options for long-term projects, such as video diaries, multimedia presentations, and amateur films. In reflecting on her past experiences and pondering how they might inform her own teaching, Annabeth said, "My own teachers' willingness to trust their students and let us explore creative pathways has allowed me to become literate in many modes. I owe my students just as much."

5. Discussion

In bringing this article to a close, we return to the dual purposes for this study we outlined in the introduction: deciphering the aggregate patterns of experiences and meanings contained within future instructors' pasts that inform their current attitudes, and articulating the pedagogical utility of both the process of writing TLANs and the implications of these aggregate patterns for how we help future instructors develop more productive stances toward technology in composition teaching.

A key finding of this study is that our participants' school-based experiences with technology were almost uniformly sub-optimal, looking nothing like the kind of embedded and creative digital literacies we support for composition classrooms today (e.g., Clark, 2010). School computing, regardless of the type of activity, is described by our narrators as largely purposeless and incidental to the rest of the curriculum. Even school experiences with programming, long advocated by educational technology scholars as empowering and exploratory (Hawkins, 1987; Papert, 1980), come out in these narratives seeming overly prescribed and pointless. Only a few narrators were able to transcend the rote nature of school computing and treat their experiences in the computer lab as exploratory or playful. As young learners, many narrators appreciated the fact that time in a computer lab was time away from regular school, but perhaps what this did is simply reinforce the idea that technology does not belong in school.

As such, it is evident that this generation of future teachers lacks adequate models for teaching with and about technology. In our own pedagogy with them, if we want instructors to be able to integrate digital literacies effectively into their composition classes, we will have to give them models for doing so. Yet, merely modeling pedagogical tactics only addresses one part of the problem, since the negative framing of school-based technology activities in participants' narratives has as much, if not more, to do with their lack of meaningful function than their impoverished forms. Prior meanings as well as prior experiences must be interrogated, or they cannot hope to be replaced. Deborah Ball's research

demonstrated that K-12 mathematics teachers who freely admit to *hating* their own mathematics education still often teach the way they were taught, whether they are aware of it or not (1988; 1990). If we apply Ball's findings to future composition instructors, then we appear to have a serious problem. But Ball also suggested that critically engaging these prior models is a key step in doing what she called "unlearning to teach" (1988); that is, moving beyond unconscious influence and developing one's own intentional pedagogy.

The back-and-forth reflective quality of some of the episodes and essays we collected suggests that techno-literacy autobiographical narratives are a potentially useful tool for encouraging future teachers to develop this intentional pedagogy: to reflect on their histories and realign their identities and future trajectories as composition instructors. Just as traditional literacy narratives help composition students bridge different language domains, so too can these TLANs support future teachers in their efforts to make sense of technology in their lives. Only a few of our participants demonstrated a kind of transformative reflection in the narratives themselves, actively altering their interpretations in the very process of writing them, but the majority revealed many rich experiences and meanings that could become the basis for ensuing pedagogical activities.

Another finding from the nature of future instructors' past engagements suggests that better models for learning with and about technology might be better sought in instructors' out-of-school experiences instead. Many of our narrators had, in their homes or elsewhere, supportive catalysts who provided opportunities for exploration without prescribing actions, free choices regarding what playful activities to pursue or what software to use, and intensely personal, social, and interest-driven motives fueling their engagements. The playful and experimental attitude that characterized their practices with technology in out-of-school settings and, for a few, carried over into their school experience as well, may hold the key to developing a pedagogical approach to technology in the composition classroom that is more reflective of the broader social trends many media scholars describe toward playful digital engagement and creativity (Gee & Hayes, 2011; Ito, 2010; Jenkins, 2009; Thomas & Brown, 2011). Without explicitly reflecting on their informal experiences, however, future instructors may not intuitively look to them as models for classroom pedagogy.

Yet, for many narrators, the positive features of their informal digital literacy experiences largely serve to facilitate senses of familiarity, comfort, and utility regarding technology, but not necessarily affinity. We find that few of these narrators become interested in technological pursuits for their own sake. For the vast majority, technology is best appreciated when it is in service of some other goal such as keeping in touch, activism, fantasy, or, predictably, writing. As such, it is perhaps not surprising that many composition instructors are as yet unwilling to take up Sean Williams' (2001) call to "expand our view of writing instruction," to include digital media and digital literacies as not merely tools in service of alphabetic literacies, but as core content and core competencies in and of themselves (p. 25). More than a few of these future instructors want to become composition teachers precisely because they like reading and writing; alphabetic literacy has been good to them, and they want their students to have a similar experience. In her 1997 chair's address to *CCCC*, Cynthia Selfe (1999) described the apprehension many humanists feel toward technology, in teaching or otherwise, as being tangential (or even "antithetical") to their aims of building advanced alphabetic literacy skills in their students.

As we prepare future composition instructors to teach with and about digital media, we must address this apprehension by providing them with opportunities to reflect on the roles and meanings of technological literacies in their own lives. The act of composing a techno-literacy autobiographical narrative is an important first step, since it encourages engagement with the past, realignment of present values, and an imagining of future trajectories. In our experience, the writing of such narratives helps future teachers work through some of their anxieties about technology and adopt an attitude of productive reflection. As our findings make clear, though, not all narrators dramatically transform the meanings and values they ascribe to technological literacy in the act of writing the TLAN itself. For most, it is only the first step on a longer journey of reflection that hopefully continues after the narrative is written.

In order to foster this continued reflection, and to build upon the work accomplished by the TLAN, we typically have future teachers compose these narratives earlier rather than later in a given course. It can then provide a starting point for a series of reflections and discussions about developing an intentional digital literacy pedagogy that draws on both positive and negative examples in teachers' own pasts. Following such discussions, future instructors might be encouraged to write a "coda" to their TLANs, which would serve not only to reframe their pasts, but to engage their futures explicitly. And, in fact, this re-storying activity is consistent with a narrative approach to meaning in the first place. As Jerome Bruner (2003) said:

> Self-making through self-narrating is restless and endless. It is probably more so now than ever before. It is a dialectical process, a balancing act. And despite our self-assuring homilies about people never changing, they do. They rebalance their autonomy and their commitments, most usually in a form that honors what they were before. (pp. 221–222)

Such change can be difficult, but the kind of critical reflection fostered by the techno-literacy autobiographical narrative may play a crucial role in transforming the meanings of experience.

Appendix A.

E 708: Technological Literacy Autobiography

In "Becoming Literate in the Information Age," Hawisher and Selfe define "technological literacy" as "the practices involved in reading, writing, and exchanging information in online environments, as well as the values associated with such practices" (678). Behind such a definition is an attempt to "expand our conception of literacy beyond that of [a] single official reading and writing" (*Writing New Media* 58). In order to "expand our conception of literacy," it will be useful to consider the ways literacy and technology shape each other in our own lives. For this assignment, please write a 4-5 page narrative essay in which you consider the intersections among literacy, technology, and identity in your own experience.

Considerations:

- Start this process by reading through Cynthia Selfe's questions in "Activity 1" (*Writing New Media*) and the interview protocol questions at the end of Hawisher and Selfe.
- Write preliminary responses to some of the questions that resonate strongly with your own experience. Not all of the questions will yield interesting reflections for you.
- Identify specific anecdotes or narratives that seem representative or especially meaningful in terms of your own experience. That is, you will want to tell stories about technology and literacy in your life.
- However, do *not* aim to relate every detail about your literate/technological experience. The length of this essay (4-5 pages) precludes you from saying everything that could be said. Instead, choose anecdotes or narrative threads that help you make some larger point about your experience.
- Make some larger point about your experience. Note how both Selfe's chapter in *Writing New Media* and Hawisher and Selfe's "Becoming Literate" pull back to draw larger "lessons" or themes suggested by the narratives they present. You should do the same. What is the larger significance or meaning of your own experience with literacy and technology?
- You might consider using their existing lessons or themes to frame your analysis of the significance of your own experience, either in terms of confirming what they say, or as complicating it. However, you are not required to do so, and may instead develop your own lessons or themes out of your own narrative.

Please submit a final version of your Technological Literacy Autobiography to Moodle by the end of the day on **Tuesday, March 8**.

Kory Lawson Ching is an Assistant Professor of English at San Francisco State University, where he teaches undergraduate and graduate courses in ethnographic writing, blogging, teaching with technology, and qualitative research methods. His research interests include teacher preparation and digital literacies, and his work has appeared in the journals *Composition Studies*, *JAC*, and *Rhetoric Review*, as well as the website *Inside Higher Ed*.

Cynthia Carter Ching is an Associate Professor of Education at the University of California, Davis, where she teaches courses in learning and human development, interview methods, and sociocultural theory. Her research focuses on the intersection of technology and identity across the lifespan. She is the co-editor of the forthcoming collection, *Constructing the Self in a Digital World*, from Cambridge University Press, and an Associate Editor at *Journal of the Learning Sciences.* Her work has appeared in *Teachers College Record, E-learning and Digital Media, Computers and Education, Urban Education*, and *International Journal of Learning and Media.*

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