San Jose State University

From the SelectedWorks of Kristen Radsliff Rebmann

June, 2010

Situated practices of information use and representation: an ethnographic study of a web design project for boys

Kristen Radsliff Rebmann, *San Jose State University*

10/

Situated practices of information use and representation: an ethnographic study of a web design project for boys

Kristen Radsliff Rebmann

Assistant Professor, School of Library & Information Science, San Jose State University, 3207 E St. James Avenue, Hayden, ID 83835, Phone: (208) 635-5464, Email: kristen.rebmann (at) sjsu.edu

Abstract

This article explores the production practices employed by children building personal webpages in a semi-structured afterschool program: the Fifth Dimension (5D). Following a critical Multiliteracies (CritMLs) approach to learning design, this ethnographic study introduced web-building practices to the children of the 5D and followed their production of personal webpages over a 9 month period. By structuring the intervention this way, it was possible to simultaneously observe the development of both the webpage as artifact as well as the child-participant. Along these lines, the study describes the unique and particular social contexts from which personal webpages emerge and develop over time. Through ethnographic observations, child interviews and surveys, and the personal webpages themselves, project findings suggest that the children engaged in practices of bricolage made possible via web-based informal information seeking practices. This reliance on web-based information seeking as a method for collecting representations to populate personal webpages made visible important relationships between children's production practices, meaning-making, and the electronic articulation of situated identity/membership and the sharing of expertise and interests.

Keywords

Introduction

This article explores the practices employed by children building personal webpages in a semi-structured afterschool program: the Fifth Dimension (5D). The Fifth Dimension represents a university-community collaboration that places undergraduates from University of California, San Diego (UCSD) in a San Diego Boys & Girls Club where they work as field ethnographers while engaging in educative play activities with K-6 child participants. Fifth Dimension research has roots in cultural-historical and socio-cultural theory. The youth web design project introduced in this study is based on applying multiliteracies conceptions of literacy practices and pedagogical design to the 5D.

Cultural-Historical Activity Theory and Socio-Cultural Influences

Inspired by the work of Vygotsky, Leontiev, Luria, and others, the Cultural-Historical Activity Theory (CHAT) field of research has addressed issues of artifact mediation, goal formation, boundary crossing, and the characterization of expertise in activity systems (see e.g., Cole, 1996; Engestrom, 1987; Engestrom & Kakkainen, 1995). James Wertsch (1985) suggests that the "three themes that form the core of Vygotsky's theoretical framework are (1) a reliance on a genetic or developmental method; (2) the claim that higher mental processes in the individual have their origin in social processes; and (3) the claim that mental processes can be understood only if we understand the tools and signs that mediate them" (p. 15). Each of these principles is present in Michael Cole's Fifth Dimension work - particularly Vygotsky's idea (1978) that children's development is supported by the practices they learn while participating in play activity with slightly more advanced peers. One goal of this study was to infuse the 5D with a multiliteracies approach to designing technology-rich interventions and activities.

Multiliteracies

The youth web design project introduced a multiliteracies approach to designing contexts within which children's interactions and learning with new information and communications technologies (ICTs) could be explored with special focus placed on the production of electronic texts. This is tied to ideas suggesting that expertise in competencies related to the critical and productive use of information tools and technologies and the ability to interact in increasingly multi-cultural landscapes contribute to children's ability to navigate the realms of school, higher education, and the new economy (Gee, 2000). By providing contexts where children can develop experience in practices related to web design, an opportunity is presented where children may use infrastructures of information in new ways. Children's production of new media may then be studied within the framework of what Gee and others associated with the New London group term "multiliteracies."

Work produced in the multiliteracies framework originates with a group of researchers who met in New London, New Hampshire in September 1994 to address the "state of literacy pedagogy" (The New London Group, 1996). Included in this group are Courtney Cazden, Bill Cope, Norman Fairclough, James Paul Gee, Mary Kalantzis, Gunther Kress, Joseph Lo Bianco, Allen Luke, Carmen Luke, Sarah Michaels, and Martin Nakata. Their 1996 article in the Harvard Educational Review presented a multiliteracies approach to pedagogical design by suggesting

that traditional conceptions of literacy are insufficient because they relegate literate practices to a narrow set of ideologically motivated discourses too limiting for the contexts facing children in the age of information and the post-Fordist economy.

> Literacy pedagogy has traditionally meant teaching and learning to read and write in page-bound, official, standard forms of the national language. Literacy pedagogy, in other words, has been a carefully restricted project - restricted to formalized, monolingual, monocultural, and rule-governed forms of language (The New London Group, 1996, 1).

Thus many of the authors associated with the New London Group used the multiliteracies framework to develop a literacy framework which responded to the technological developments and economic changes associated with the new economy which emerged during the late 1990's. Many of these authors formerly worked within the critical literacy framework and simply extended the critical line to this newly articulated approach: multiliteracies.

The New London researchers suggest that literacy pedagogy should be expanded to include preparing students to negotiate a multiplicity of discourses. They argue that this approach is justified for two reasons. First, literacy pedagogy must account for the cultural/linguistic diversity characteristic of globalized societies. Second, literacy pedagogy should engage with the multiplicity of textual forms emerging as a consequence of the rapid development and spread of new communication and information technologies. Along these lines, the multiliteracies approach assumes that the contingencies of rapid social, economic, and technological changes demand that literacy educators and students must be active participants in social change; referred to as "active designers - makers - of social futures." (1996, 4)

This concern with the design of social futures is integral to the multiliteracies emphasis on the importance of pedagogical responses to changes in the realities of working, personal and public life. In the same spirit, schools (and other learning environments) must be arbiters of difference by developing a literacy pedagogy where "cultural and linguistic diversity is a classroom resource just as powerfully as it is a social resource in the formation of new civic spaces and new notions of citizenship" (The New London Group, 2000, 15). Thus, a pedagogy of multiliteracies supports and makes visible the potentiality for engagement with and valuing of diverse community narratives.

Following the multiliteracies line of research, which argues that educators and those concerned with supporting children's learning and development should design settings and interventions that support the acquisition of new literacies, the study endeavored to introduce an activity that was permeable to the discourses and lifeworlds children bring to literacy events while introducing them to an educative, traditionally adult-oriented set of media production practices (webpage design). The setting had a history of children interacting with new ICTs but activities had previously been oriented toward computer gaming.

Methods

Keeping these theoretical considerations in mind, an intervention was designed with the goal of introducing and extending new ICT production practices in the Fifth Dimension (5D), an afterschool experiment in informal learning design. The research design introduced web-building practices to the children of the 5D and followed their production of personal webpages over the course of 9 months. By structuring the intervention this way, observations could be made simultaneously of both the webpage as artifact and the child-author. Rather than simply analyzing the children's products of their "online" practices conveyed through personal webpages, the study presents evidence compiled by observing and knowing the authors through their actions in the "dirt world".

The project addresses three core questions:

1. How will children engage in media production in a voluntary, play-dominated setting?
2. What will the participants' design strategies be like and what will the participating children choose for inclusion in their personal webpages?
3. How will the situated social context shape and influence the personal webpage design activities?

Participant Observations

This paper addresses, in depth, practices of personal webpage design as they were adopted among boys participating in the Fifth Dimension (5D) over a 9 month period during the 2004-2005 academic year. Adult, undergraduate participants recorded much of the activity as it enfolded in ethnographic fieldnotes. Undergraduates (between 15 and 20) attended the Fifth Dimension site 2 times a week and authored fieldnotes detailing their participation and interactions. Educative play activities included participation in: (a) pc-based video gaming, (b) art projects, (c) board games, (d) video production, and (e) web design.

Over 200 fieldnotes were collected over the 9 month during the fall and winter. Coding and analyses were performed such that participation in personal webpage design could be charted and characterized through observations made by adult, undergraduate participants in the Fifth Dimension. As part of their participation in the 5D children were encouraged to build websites via informal means. For example, a site coordinator or undergraduate might simply ask a child if they would like to build a website. All progress made by children in completing activities was recorded by undergraduate buddies in their Fifth Dimension folder (a log of activity participation for each child).

Child Interviews

Children were interviewed periodically concerning their web design. The digital audio recordings of these interviews provided data on how children participated in activities integrating technology, information seeking and web production.

Artifacts and Designworks

Relevant artifacts for analysis included floppy disks provided to children (for saving desired games, webpages in progress, photos, artwork, homework, letters, etc.), handwritten documents and artwork, and multimedia designworks. Content from children's floppy disks was uploaded to folders on a server at the end of each week. A separate folder was prepared weekly for each child. The weekly children's folders were then placed in an aggregate "cohort" folder to render a complete collection for each week. Artifacts and designworks produced in the Fifth Dimension provide additional evidence that children engaged in particular activities such as reading, writing, media production, and web design during a particular timeframe.

The practice of encouraging children to save the products of electronic activities allowed for the tracking of child participation over time. For example, one child created a handwritten list of codes that he searched for on the Web, copied down, and was able to successfully use to pursue an agenda within a particular computer game. In later weeks, the child then transferred this list to an electronic document and finally to a personal webpage.

Analysis via Triangulation

The overall research design allowed for a triangulation between data collected from observations of children inscribed in fieldnotes, statements children made about themselves (in interviews), and the electronic representations saved on floppy disks and bound up in the webpages themselves. The results section analyzes the children's web design strategies and the localized contingencies shaping and constraining their web production projects.

Results

Childrens' Personal Webpage Design

Personal web design was chosen as an activity in hopes that the children would extend their repertoires of practice by learning the technical and narrative literacies needed for building electronic narratives. Nine boys participated in webpage design during the fall of 2004. It was anticipated that the children would practice the manipulation and management of electronic files and engage in the development of an electronic life story, potentially exploring issues of identity and membership. In the sections that follow several cases of children who built webpages as part of this study are presented and elaborated upon.

Marret

Marret was the oldest child (11 years old) producing webpages in the Fifth Dimension. He was an early adopter of technology and media production practices. His first personal webpage was posted the Internet in 2003. Interestingly, although Marret had enjoyed a lot of success in gaming, the design of websites, and, as of late, simulations via Stagecast Creator, he struggled in school. That he struggled with reading and had been held back a grade had in no way limited the role Marret played as a wizard's assistant (a role children assumed in the 5D once they completed a certain number of activities). Marret's influence as an early adopter of tools and practices in the 5D was an important one in that the children in many circumstances followed his model for their own designs.

Bran

Bran was 10 years old and a wizard's assistant. Like Marret, he was a leader to the younger children, but his presence was less influential than Marret's since he did not the 5D as often and had not been part of the 5D for as long a period of time. Bran enjoyed greater success in school than Marret. Bran's interest in more adult topics was evident in his use of a political parody of George W. Bush on his website. He also placed links to games and used a distinctive "WordArt" method of creating page headers that was imitated by the other boys.

Skyler

Skyler (10 years old) visited the 5D with his sister Melissa. Like Marret and Bran, he was a wizard's assistant (WA). Skyler's method of using pictures already saved on his disk and supplementing their inclusion with items searched for on the Web was repeated in many of the websites.

> We then went online again to Google and searched for pictures of the lord of the rings. For these pictures, it didn't matter if they were small because we could adjust them. He found about four pictures and saved them all onto his disk. He then opened them up on Frontpage and inserted them onto his first page. Then we opened up a new page and inserted an old table we had saved a while ago with all of his cheat codes. The table was already saved neatly on Microsoft Word so we just inserted it onto the new sheet. [LT: 11/4/04].

Skyler's experience as described by LT in the fieldnote above demonstrates both the expertise (required of adult participants) that was necessary to make such production projects possible as well as the range of practices and competencies that are bound up in new ICT (web specifically) production projects. The anecdote detailing Skyler's experience likewise demonstrates the potential exists for creating spaces where learning events are contextualized in ways that are responsive to children's goals and popular interests.

Drew

Drew's (9 years old) motivation to build a webpage seemed to be tied up with his desire to become a wizard's assistant so that he could play a new set of games (part of the activity structure of the 5D). Yet Drew found the time to devote to designing a personal webpage as well as becoming one of the most prolific authors with 5 pages in all. Drew was also the most active user of humor and parody in his websites.

Drew's website incorporated images of animals, in funny poses that he found via web-based searching, into his webpage. In addition to these images of animal parody, Drew highlighted his other interests in gaming.

> He chose a black jack game and started to play. I was surprised he knew how to play, and pretty well too. I asked him where he learned how to play, he told me his cousin taught him. I was uncertain if this game was appropriate to play here, and I asked him, and he said, "I think so." [SD: 11/8/04]

In the fieldnote above, the undergraduate asks Drew if a certain game is appropriate for him to play in the Fifth Dimension. His uncertain reply was a typical response from Drew as he was often implicated in goodheartedly lying to undergraduates to see how far he could manipulate the system to play games not part of the 5D. Drew's strategies to challenge adult authority were generally supported by the structure of the Fifth Dimension which sought to empower children as long as the outcome did not involve endangering participants or incorporating/producing offensive materials.

Carland

The Boys & Girls Club site coordinator, John, was surprised to see Carland (9 years old) spend time in the computer lab since he had previously been more involved in outdoor activities exclusively.

> Carland rarely ventures into the computer lab, outside at the basketball court is his typical location. He's a very good athlete, so it's a good sign that he's willing to try out another environment where he isn't quite so sure of himself. [JN: 11/14/04]

Carland seemed to use conventions similar to those of the other boys when building his website and his site shows the influence of others in his inclusion of animal parodies. In line with John's appraisal of him, there was an emphasis on sports in his webpage and he indicated (when responding to a question in his 5D application form) that what makes him special is his athletic ability.

Manny

Manny (9 years old) was a longtime participant in the Fifth Dimension. Many of the undergraduates commented that Manny was one of the few children who had an interest and love for technology in general. He jumped at the chance to try new things - particularly anything having to do with media production. When building his website, Manny chose animal parodies and a link to a favorite Lego racing game. Later in the year, he expressed the desire to build another website about low-riders. The archived records from his disk demonstrate that he collected related pictures but when the club closed for remodeling, he had only completed the one page.

Alfred

Also 9, Alfred had an interest in video games and adventure stories like *Lord of the Rings and Star Wars*. Asperger's Syndrome made some of Alfred's social interactions somewhat strained but he remained included by the adult participants as well as the children in the Fifth Dimension. Alfred used his love of learning about technology, games, and fantastical stories to create a personal webpage which linked visitors to his favorite game and placed images from Star Wars video games.

Interestingly, Phil (age 6) created his webpage on the same day at the computer next to Alfred and incorporated a similar *Star Wars* screenshot. At 6 years old, Phil was the youngest boy in the group. He had limited ability to read but this limitation did not prevent him from playing computer games most of which did not require reading skills to perform the most basic operations. Phil most often played simulation video games where he got involved with building zoo or city structures. He tended to spend a lot of time watching the older boys play - a common strategy employed by younger boys in the Fifth Dimension. After talking with Marret, Phil was inspired to build his own website. Although he only managed to place one picture on his page (an action screenshot from a *Star Wars* video game), his production was in keeping with the core concerns of the greater group by addressing 2 popular themes: action adventure narratives and video gaming.

Dill

Dill (age 8) was a special case in that he only visited the 5D once during the period of interest. Although he was only fleetingly present, he created a personal webpage highlighting his interest in cars and trucks. His project is included in the study due to his potential influence on the other participants. Many of the other boys gathered around him and watched him build his site (early enough in the year to undoubtedly contribute to group knowledge and practices). Dill combined the images he found on the Web with text-based descriptions he thought of. He included a link to a favorite magazine. Unfortunately Dill never returned after that one visit to the research site.

Children's Practice of Production

Chandler and Roberts-Young use Claude Levi-Strauss' notion of "bricolage" (Levi-Strauss, 1974) to characterize the methods by which children build aspects of their lives and identities into personal webpages. He argues that rather than writing homepages, they are, in fact assembled. In this sense, homepage authors become the "bricoleur who appropriates the materials which are ready-to-hand is widely employed in relation to cultural practices in youth subcultures (Chandler & Roberts-Young, 1998)."

Bricolage

Through observations of the boys who built personal webpages as part of their participation in the Fifth Dimension it became apparent that children used pictures appropriated from other sources on the Web to articulate a sort of visual autobiographical narrative. For example, Carland, by cutting and pasting images he searched for on the Internet, effectively used a collection of pictures to make explicit his interest and participation in activities such as skateboarding, surfing, and motocross. These results were in agreement with Chandler & Roberts-Young's work (Chandler & Roberts-Young, 1998; Warschauer, 2000).

As in the Chandler & Roberts-Young study, all of the images in Carland's website were appropriated from other websites found by using a search engine primed for image-based information retrieval. In fact, the ratio of original to appropriated content was quite low. This

outcome is a departure from adult ratios as reported by John Buten's (1996) survey of personal webpage authors. Although conducted a decade ago, the Buten study suggests that while "borrowing, copying, cutting, & pasting" images particularly is commonplace, adults engage in these practices less frequently. The highest incidence of "copying images as they see fit" occurred in 40% of web authors associated with an educational community. By contrast, in this study, 8 of the 9 participants integrated images obtained by copy and pasting from other web sources.

Information Seeking and Use

As mentioned in the previous section, the mode by which the children located images for inclusion in their websites was via web-based information seeking. This reliance both on using images as the most prominent mode of representation, as well as obtaining materials from other sources, seemed to emerge due to resistance on the part of children to writing activities. This resistance to writing has been observed and recorded in fieldnotes associated with the 5D for many years. The reasons given range from the association children hold between writing and school to the small muscle coordination, time, and concentration it requires for some children to engage in writing with a pen/pencil or by typing. On the other hand, many of the children lacked the ability to read. After getting help from an adult participant to type in a search word, they either relied on continued help or memorized the keystrokes required to achieve desired effects. These difficulties or resistance to reading and writing undoubtedly contributed to some of the children's reliance on web searching to obtain content for their sites.

Representational Mobility

In addition to their reliance on web-based information seeking, the children also used interpersonal sharing of practices and tools to help support the design process. There existed a general flow (in the 5D) of tools, practices, and representations from boys who are wizard's assistants (Marret, Bran, and Skyler) to those boys with less experience. Adults, in addition to children in the 5D, were aware of this and actively used the more advanced children as sources of knowledge and expertise. On the first day of the spring 2004 Fifth Dimension, a site coordinator identified Marret as having a great amount of expertise. This statement to undergraduates regarding Marret (age 11) represented a validation of his skills and influence within the Fifth Dimension. The recognition that Marret had a developed skill-set related to gaming and computing resulted in other boys wanting to do similar activities. One younger boy in particular, Phil (age 6), aspired to engage in practices similar to Marret.

Although Phil got the idea of building a webpage from Marret, he ended up producing his webpage next to another older boy, Alfred (age 9). It is interesting to see how Phil's resulting website carried similar representations but at a lower level of complexity than the older boy, Alfred. This movement of practices and representations through the group, generally from older to younger and from more to less skilled participants, was repeated even among older experienced boys. Youth computing and web-building design leaders (the three wizard's assistants and Drew to a certain extent) seemed to establish themes that were relevant to the whole group. For example, in more than one case, exactly the same image (paired images of monkeys holding semi-automatic rifles) appeared in multiple websites.

Contrary to the perception that web development is an individual activity, personal webpages in the 5D incorporated aspects of collective production: the sharing of representations and production practices. The mode by which representations (associated with personal webpage development) were shared and negotiated may be better understood by looking at the practices of *collective computing* common to gaming and other technology-based activities in the Fifth Dimension (see Figure 1).

Figure 1. Collective computing in the Fifth Dimension

This type of movement and posture represented the norm for engagement in the Fair Hills' Boys and Girls Club computer room rather than the exception. Often a few "watchers" vicariously played a game or participated in an activity by watching another child. Although the watchers may have never completed an activity by themselves, such practices of collective computing contributed to an organization of activities in the 5D which served to spread and maintain practices related to gaming, computer use, and of interest here: webpage production. In another example, collective practices of gaming contributed to a cheat code getting passed from an older wizard's assistant, Bran, to a younger participant, Phil. Collective gaming and computing scenarios supported social practices where older more skilled children introduced tools and practices to younger participants. The younger child in the case mentioned previously (Phil), struggled to do an action in a video game via trial and error. He finally achieved success through the social facilitation he received from the older boy, Bran.

It is not surprising, then, that cultural traditions in the Fifth Dimension (in another instance: the location and application of cheats) were fairly stable and appeared in many of the children's websites in the form of links to cheats websites and lists of cheats. Marret's early webpage demonstrates the stability of this particular practice: although authored almost 6 months prior to the wider introduction of web design practices in the 5D, it contains a link to CheatWorld.com. Given the existing practices of collective computing and gaming experiences, that web production activities tended to get done "collectively" seems a natural progression. It is not surprising then that the webpages coming out of the 5D reflect this representational sharing and almost seem to be in conversation with each other.

Genres of Youth Web Design

The themes which the boys used to populate their personal webpages were: (a) "boy topics" such as gaming, cars, sports, and action/adventure narratives, and (b) humor and parody. While both genres made explicit shared concerns among the web-building subgroup at the Fifth Dimension, the former seemed to provide a means for articulating identity and membership while the latter seemed to suggest active meaning-making and challenges to adult loci of authority.

Youth Cultures

Although the boys relied heavily on the use of visual representations to populate their websites, the images contained therein and their organization possess a particular structure that really accomplishes quite a lot symbolically with the use of few, if any, words. That message, symbolic or textualized, seems to provide a way of "doing membership" in various youth cultures or ways of being including: cars, gaming, sports and fandom. Bound up in this membership, however, are aspects of the owner's identity. More specifically, the developers of personal webpages in the Fifth Dimension seemed to articulate identity through a set of implied memberships embedded in the collections of images and links which they "pushed" to viewers. The prominent role computer gaming played in the Fifth Dimension was also transferred to the design of personal webpages. Specifically, all but 2 of the children's webpages contained either links to online games or lists of cheats and cheat sites. Cheat sites are websites that provide visitors with either codes or in-game strategies that allow gamers to obtain an (unfair/nonconventional) advantage in playing the game.

In addition to gaming, engagement with popular youth narratives such as *Star Wars, Lord of the Rings (LOTR)*, and various comic book characters played an important role in the children's webpages. Most of the narratives were action/adventure oriented and seemed to indicate children's status as fans of various series.

Sports were also represented in the boys' pages yet less prominently. Carland and Marret were the only children who included sports images. Carland was also the only child to indicate on his application that what made him special was the fact that he was athletic.

Car and motorcycle culture made an appearance in the webpages, more so than sports but to a lesser extent than gaming, action narratives, or humor and parody. Interestingly, each of these youth cultures were rooted in an articulation of what it means to be a boy prior to adolescence. Membership in these boy-oriented communities of practice local to the 5D as well their individual tastes and interests were reflected. By contrast, it was initially unclear what role humor and parody played in the personal webpages (beyond perpetuating group cohesion through laughter).

Humor and Parody

The use of humor and parody was a common element used in the boys' websites. In this example, a child (Manny, age 8) describes why he included a particular picture (see Figure 2) in his personal webpage.

UCSD buddy: What's this first picture?
Child: Um, a cat drinking beer.
UCSD buddy: Why did you pick that picture?
Child: Cuz it's funny.
UCSD buddy: What's so funny?
Child: Um, cats usually don't drink beer.
UCSD buddy: Cats what?
Child: Cats usually don't drink beer . . .
UCSD buddy: Oh, so that fact that he's on the couch like drinkin' a beer is funny.
Child: Yah.
(Interview with Manny, December 2004)

Figure 2. Screenshot: An image from Manny's personal webpage (original background was black)

The partial transcription above illustrates the manner in which children used the personal webpages in the Fifth Dimension as a vehicle to showcase funny, often ludicrous representations of animals. Beyond supporting a collective laugh for all involved, the images allowed the children to articulate understandings of the world and linguistic meaning (e.g. what is real, what is absurd or ridiculous; see Figure 3) through humor and parody.
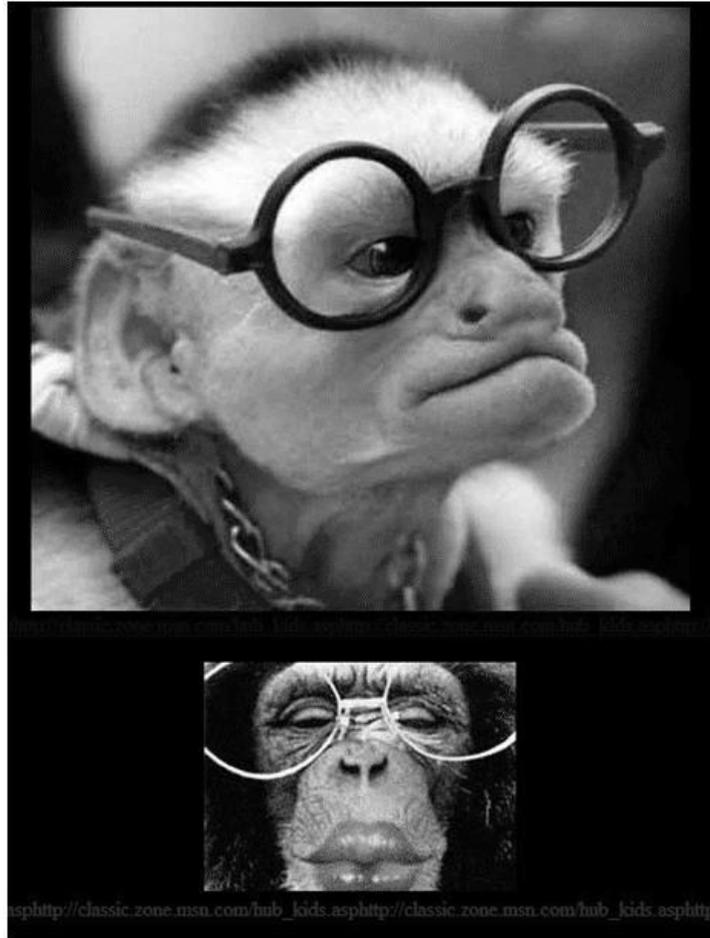
Figure 3. Screenshot: Jokes in Drew's personal webpage

Such understandings may be seen in Manny's suggestion that the cat is funny because they "usually don't drink beer". Using the sites as vehicles to negotiate cultural and linguistic meanings seems important, yet perhaps there is more to it. When considered within the local context of their inclusion, the pictures of parody in many of the kids' websites seemed to contain a latent critique or challenge to adult authority in the afterschool program. Take for example the image of the cat drinking that Manny placed on his webpage. This image also appeared on Drew's website.

The image of the cat and similar representations juxtaposing monkeys or fuzzy cats and dogs with guns appeared to work on complex and multi-varied levels. The images simultaneously placed cute, even babyish images in funny or ludicrous situations, while symbolically acting out aggression towards the sources of adult authority which frowned on children's rude behavior, use of guns or consumption of alcohol. In short, part of the joke represented the sophisticated and symbolic challenge of authority.
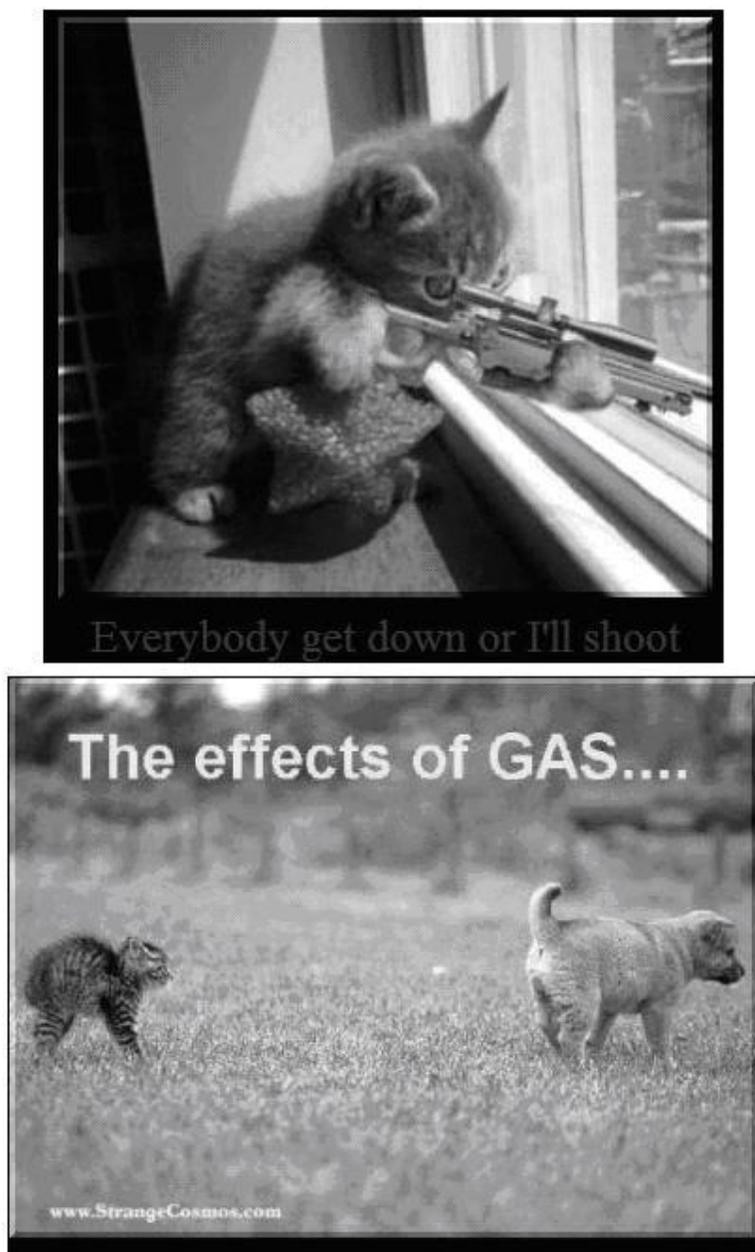
Figure 4. Screenshot: Pictures appearing Drew (top and bottom) and Marret's (top) webpages

Discussion

Observations of the boys who designed webpages provided insights into the ways in which children engage both individually and collectively with developing (digital) personal (narratives). The boys who created webpages used practices of bricolage, made possible via web-based (informal) information seeking practices to support the production of their sites. Representations used to populate personal webpages made visible important relationships between youth inquiry practices, the articulation of group identity in electronic texts, and the sharing of expertise and representations. Findings suggest that youth web developers articulated

identity through a set of implied memberships embedded in the collections of images and links they first searched for on the Web then "pushed" to viewers in their completed designs. When children were actively developing their sites in the Fifth Dimension, there existed a general flow of tools, practices, and representations from older and more skilled children to those youth with less experience.

Youth web designers often searched for humorous images juxtaposing animals with guns or alcohol. Via digital personal webpages populated with these representations, they were allowed to engage in humor and meaning-making that was oftentimes a challenge to adult sources of authority in the Fifth Dimension and at the Boys and Girls Club at large. For example, the ways in which they placed these images in the webpages served as a means to act out resistance to adult authority which frowns on children's rude behavior, use of guns, or consumption of alcohol. Along slight different lines, the boys seemed to use these representations (intriguingly) to explore what is real versus what is absurd. These observations suggest that (contrary) to work emphasizing what is "different" about new information and communication technologies (and how they are used) this study highlights the ways in which children's interactions with these technologies represents just one more medium for them to explore language and the ordering of their worlds.

Conclusions

This study explores (ethnographically) the personal webpage design production practices of boy participants in an afterschool program, the Fifth Dimension, to chart the interplay between individual goals, the concerns of a small group of boy computer users, and the constraining forces of an afterschool idio-culture. Findings suggest that the boys who built personal webpages relied heavily on information seeking practices to locate material on the Web to cut, paste, and save electronically to supplement, and in some cases, form the bulk of their web presence. There is some evidence that this behavior tapers off as children reach young adulthood and subsequently become more efficient at writing/keyboarding and less resistant to practices associated with schooling (Buten, 1996). Thus, the observed propensity of information seeking to youths of this age presents a unique opportunity to study children's development via interactions with new information and communications technologies. Along similar lines, the practices of representation the boys used to engage in complex forms of meaning-making and identity articulation demonstrate how technology-mediated activities can provide rich contexts to study the learning and development of youth. More research needs to be done to more fully develop a field of research which concerns itself with studying (situated) youth interactions with new ICTs, focusing on both the participants and artifacts of activity in dirt and digital worlds.

Acknowledgments

References

- Bates, J.A. (2004). Use of narrative interviewing in everyday information behavior research. *Library and Information Science Research*, 26, 15-28.
- Bilal, D. (2004). Children's information seeking on the Web. In Chelton, M. K., & C. Cool (Eds.), *Youth information-seeking behavior* (pp. 271-291). Lanham, MD: Scarecrow Press.
- Bowker, G.C., & Star, S.L. (2000). *Sorting things out: Classification and its consequences*. Cambridge, MA: The MIT Press. (Original work published 1999).
- Brown, A.L. (1992). Design experiments: theoretical and methodological challenges in creating complex interventions in classroom settings. *Journal of the Learning Sciences*, 2, 141-178.
- Buten, J. (1996). *First World Wide Web personal home page survey*. Retrieved May 2, 2005, from Personal Home Page Institute Web site: http://www.nicoladoering.de/Hogrefe/buten/www.asc.upenn.edu/usr/sbuten/survey2.htm
- Chandler, D., & Roberts-Young, D. (1998). *The construction of identity in the personal homepages of adolescents*. Retrieved December 28, 2004, from University of Wales Department of Education Web site: http://users.aber.ac.uk/dgc/strasbourg.html
- Chukovsky, K., (1963). *From two to five*. Berkeley, CA: University of California Press.
- Cole, M. (1996). *Cultural psychology: a once and future discipline*? Cambridge, MA: The Belknap Press of Harvard University Press.
- Darnton, R. (1991). Workers revolt: the great cat massacre of the Rue Saint-Severin. In *Rethinking popular culture* (pp. 97-120). Berkeley: University of California Press.
- Dresang, E. (1999). More research needed: informal Information-seeking behavior of youth on the Internet. *Journal of the American Society for Information Science*, 50(12), 1123-1124.
- Dresang, E. (2005). The information-seeking behavior of youth in the digital environment. *Library Trends*, 54(2), 178-196.
- Engestrom, Y., & Kakkainen, M. (1995). Polycontextuality and boundary crossing in expert cognition: learning and problem-solving in complex work activities. *Learning and Instruction*, 5(4), 319-336.
- Fine, G.A. (1987). *With the Boys*. Chicago: University of Chicago Press.
- Gee, J.P. (2000). The new literacy studies: from 'socially situated to the work of the social. In Barton, D., & Hamilton, M. (Eds.), *Situated literacies: reading and writing in context* (pp. 180-196). New York: Routledge.
- Gee, J.P. (2000). Cyber-schooling and technological change: Multiliteracies for new times. In Cope, B. & Kalantzis, M. (Eds.), *Multiliteracies: literacy learning and the design of social futures* (pp. 69-91). London: Routledge.
- Gee, J.P. (2003). *What video games have to teach us about learning and literacy*. New York: Palgrave MacMillan.
- Kuhlthau, C. (2004). *Seeking meaning: a process approach to library and information services* (2nd ed.). Norwood, NJ: Libraries Unlimited. (Original work published 1993).
- Large, A., Beheshti, J., & Brenleux, A. (1998). Information seeking in a multimedia environment by primary school students. *Library and Information Science Research*, 20(4), 343-375.
- Levi-Strauss, C. (1974). *The savage mind*. London: Weidenfeld & Nicolson.

- The New London Group. (1996). A pedagogy of multiliteracies: Designing social futures. *Harvard Educational Review*, 66(1), 60-92.
- The New London Group. (2000). A pedagogy of multiliteracies designing social futures. In B. Cope & M. Kalantzis (Eds.), *Multiliteracies: Literacy learning and the design of social futures* (pp. 9-38). London: Routledge.
- O'Hear, S., & Sefton-Green, Julian. 2004. Style, genre, and technology: The strange case of youth culture online. In Hawisher, G. & Selfe, C. (Series Eds.) & Snyder, I. & Beavis, C. (Vol. Eds.),*Doing literacy online: Teaching, learning and playing in an electronic world* (pp. 121-144). Cresskill, NJ: Hampton Press, Inc.
- Rogoff, B. (2003). *The cultural nature of human development*. Oxford, UK: Oxford University Press.
- Schustack, M., Strauss, R., & Worden, P. (1997). Learning about technology in a non-instructional environment. *Journal of Educational Computing Research*, 16(4), 337-351.
- Shenton, A., & Dixon, P. (2004). Issues arising from youngsters' information-seeking behavior. *Library and Information Science Research*, 26, 177-200.
- Star, S.L., & Griesemer, J.R. (1989). Institutional ecology, 'translations' and boundary objects: Amateurs and professionals in Berkeley's museum of vertebrate zoology. *Social Studies of Science*, 19, 387-420.
- Warschauer, M. (2000). Language, identity, and the Internet. In B. Kolko, L. Nakamura, & G. Rodman (Eds.), *Race in cyberspace*. New York: Routledge.
- Warschauer, M., Stone, L., & Knobel, M. (2004). Technology and equity in schooling: Deconstructing the digital divide. *Educational Policy*, 18(4), 562-588.
- Wertsch, J. (1985). *Vygotsky and the social formation of mind. Cambridge*. MA: Harvard University Press.

Alert us when: New articles cite this article