Title
Charting transformative practice: critical multiliteracies via informal learning design

Permalink
https://escholarship.org/uc/item/2jd64451

Author
Clark, Kristen Radsliff

Publication Date
2007

Peer reviewed|Thesis/dissertation
Charting Transformative Practice: Critical Multiliteracies

Via Informal Learning Design

A Dissertation submitted in partial fulfillment of the requirements for the degree

Doctor of Philosophy

in

Communication

by

Kristen Radsliff Clark

Committee in charge:

Professor Michael Cole, Chair
Professor James A. Levin
Professor Hugh Mehan
Professor Carol Padden
Professor Olga Vasquez

2007
The Dissertation of Kristen Radsliff Clark is approved, and it is acceptable in quality and form for publication on microfilm:

Chair

University of California, San Diego

2007
DEDICATION

It is with sincere gratitude that I acknowledge the unending support and encouragement I have received from my husband, Matthew Arnold Clark, my son, Camden Bernard Clark, and my parents, Cristina and Richard Radsliff.
# TABLE OF CONTENTS

SIGNATURE PAGE .................................................................................................................. iii  
DEDICATION ........................................................................................................................ iv  
TABLE OF CONTENTS .......................................................................................................... v  
LIST OF FIGURES .................................................................................................................. x  
LIST OF TABLES ................................................................................................................... xii  
ACKNOWLEDGEMENTS ........................................................................................................ xiii  
VITA ........................................................................................................................................ xiv  
ABSTRACT OF THE DISSERTATION ..................................................................................... xv  

CHAPTER I  INTRODUCTION: A RATIONALE FOR ADDRESSING DIGITAL DIVIDES VIA INFORMAL LEARNING DESIGN ................................................................. 1  
  Why ICT Literacies? ........................................................................................................... 3  
  Making the Case for Informal Learning Design .............................................................. 6  
  Afterschool Informal Learning Environments ................................................................. 8  
  The Fifth Dimension ....................................................................................................... 9  
  Structure of the 5D as an Experiment in Learning Design ....................................... 10  
  Developing Research Questions at a Pilot Field Site .................................................... 12  
  Structure of Remaining Chapters ............................................................................. 18  

CHAPTER II  FROM LITERACY TO CRITICAL MULTILITERACIES ....................... 21  
  Reconceptualizing Literacy .............................................................................................. 22  
  The Critical Turn in Education and Literacy Research .................................................. 23  
  Locating Disadvantage in the Social Formation .............................................................. 23  
  Moving Beyond Class: Latino and Critical Race Theory ............................................ 26
From Critical Literacy to Critical Literacies ................................................................. 28
Multiliteracies............................................................................................................... 28
New Literacies............................................................................................................. 34
Popular Literacies...................................................................................................... 40
Critical Multiliteracies for Informal Learning Design.................................................. 46
Exploring Lifeworlds ................................................................................................. 47
Recognizing Sources of Power .................................................................................. 48
Multimodality.............................................................................................................. 49
Intertextuality ............................................................................................................. 49
Play and Popular Culture ......................................................................................... 50
Design and Production .............................................................................................. 51
Changing Roles for Adults ......................................................................................... 51

CHAPTER III  INTERVENTION DESIGN AND ANALYSIS .............................................. 53

Intervention Design: CritMLs and Boundary Crossing................................................ 54
Boundary Objects and Crossing ................................................................................ 55
What Boundaries? Mapping Expertise in the Fifth Dimension .................................. 56
Brokered Participation in Communities of Practice .................................................. 58
Third Spaces and a Recognition Perspective ............................................................ 58
Revisiting Intertextuality: Intertextual Taskcard Designs ......................................... 60
The Centrality of Social Action ................................................................................. 63

Data Collection at Fair Hills and Polvera Boys and Girls Club ................................ 64
Ethnographic Observations ....................................................................................... 65
Child Questionnaires and Interviews ....................................................................... 65
Designworks ............................................................................................................... 66
Challenges to Digital Storytelling: Contradictions between Goals......118

Rebekah ....................................................................................................................125

Storytelling as Play Practice ...........................................................................126

Complex Motivations for Participation ............................................................128

Boundary Crossing in the Digital Storytelling Group ......................................132

CHAPTER VI  FURTHER DEVELOPING TASKCARD DESIGNS: POLVERA
BOYS AND GIRLS CLUB .........................................................................................137

Reflections on Intertextual Taskcard Designs: Video Games as Gateways to
Learning .................................................................................................................137

Games without Secrets: A Dead-End for Girls? ..............................................140

Intertextual Taskcard Design at Polvera B&GC .................................................142

Youth Movie Culture and Popular Films ............................................................144

Anton (age 7) and Petri (age 9) ...........................................................................146

Brody (age 9), Auggie (age 8), Dustin (age 9), & Steven (age 8) ..................148

Celia (age 7) ..........................................................................................................150

Boundary Crossing and the Movie-Centric Taskcards ....................................153

Child-Centered Holidays and Customs ..............................................................154

Jackie (age 10) & Veronica (age 11) .................................................................157

Auggie (age 8) and Bran (age 9) .........................................................................159

Celia (age 7) ..........................................................................................................161

Boundary Crossing and Holiday-Oriented Taskcards ....................................163

Tools for Exploring Lifeworlds: Translation Tasks ..........................................164

Tina (age younger than 9) and Anton (age 7) ...................................................166

Jed (2nd grade) ....................................................................................................167

Petri (age 9) ..........................................................................................................168
Boundary Crossing in the Taskcards with Translation Activities ............ 169
Appropriating New Practices; Working toward Mastery ........................... 170
CHAPTER VII  Conclusion .............................................................................. 172
Limits of Popular Culture as Gateways to Literacy Events .................... 174
Gendered Ecologies of Electronic Cultures ......................................... 175
Limits of Boundary Crossing as a Unit of Assessment ........................... 177
Individual Experience ........................................................................... 178
Considerations for Future Research ......................................................... 180
Gendered Information Infrastructures of Gaming ................................. 180
CritMLs: Moving In and Beyond School Hours ..................................... 183
Some Closing Thoughts ........................................................................ 185
REFERENCES .................................................................................................... 187
LIST OF FIGURES

Figure 1 Screenshot: ICT Literacy Assessment Web Demo (Educational Testing Service, 2007) .......................................................... 5

Figure 2 Scan of a tip from hints book (Sonny, age 11) .......................................................... 16

Figure 3 Scan of a tip from hints book (Greta, age 11) .......................................................... 16

Figure 4 Scan of a tip from hints book (Alan, age 12) .......................................................... 17

Figure 5 Gutierrez' Third Space (Tejeda, 2003) .................................................................... 59

Figure 6 Intertextual Taskcard: "Zoo Tycoon Activity Page" .................................................. 61

Figure 7 Summary of design principles for the dissertation .................................................. 64

Figure 8 Screenshot: Alfred's personal webpage .................................................................. 80

Figure 9 Screenshot: Phil's personal webpage ........................................................................ 81

Figure 10 Screenshot: Dill's personal webpage ...................................................................... 82

Figure 11 Screenshot: Marret’s personal webpage, October 4, 2004 ..................................... 88

Figure 12 Screenshot: Drew's personal webpage, October 28, 2004 ..................................... 88

Figure 13 Collective computing in the Fifth Dimension ......................................................... 89

Figure 14 Screenshot: One iteration of Marret’s personal webpage (prior to fall 2004) .......... 91

Figure 15 Screenshot: Marret's gaming site linking to cheats ................................................ 93

Figure 16 Screenshot: Skyler's personal webpage ................................................................. 95

Figure 17 Screenshot: Pictures from Manny's personal webpage (original background was black) .................................................................................................................. 98

Figure 18 Screenshot: Jokes in Drew's personal webpage ...................................................... 99

Figure 19 Screenshot: Pictures appearing Drew (top and bottom) and Marret’s (top) webpages ....................................................................................................................... 102

Figure 20 Misty (left) and Rosemary (right) playing with Bobblehead Dolls at Fair Hills BGC .......................................................................................................................... 110

Figure 21 Misty and Rosemary's digital photos of their Bobblehead dolls .......................... 113
Figure 22 Fall 2004 Fifth Dimension Application ..........................................................115
Figure 23 Rebekah creates a storyboard for her digital storytelling project. .................126
Figure 24 Rebekah escorts the "ugly thief" to jail..............................................................130
Figure 25 Jack on the day of filming the “BGC News” digital story..............................135
Figure 26 Anatomy of an intertextual taskcard design....................................................143
Figure 27 Intertextual Taskcard: "Hey Moviemakers!" ......................................................145
Figure 28 Intertextual Taskcard: "Movie-Making for Kids" .............................................146
Figure 29 Intertextual Taskcard: "Personal Pumpkin"......................................................155
Figure 30 Intertextual Taskcard: "Personal Turkey".........................................................156
Figure 31 Veronica's Personal Pumpkin (6th grade).........................................................158
Figure 32 Bran's Personal Pumpkin (age 9)....................................................................161
Figure 33 Intertextual Taskcard: "Spongebob Song Lyrics" ...........................................165
LIST OF TABLES

Table 1 Summary of Literacy Frameworks ................................................................. 45
Table 2 CritMLs: Principles for Informal Design ....................................................... 47
Table 3 Summary of Biographical Information ......................................................... 72
Table 4 Summary of Methods and Designs in Youth Personal Webpages .............. 73
Table 5 Summary of Cases ...................................................................................... 174
ACKNOWLEDGEMENTS

First and foremost, I want to thank Michael Cole for his continued support of my work and my colleagues at the Laboratory of Comparative Human Cognition and the Department of Communication for encouraging my ideas and research. I have continually appreciated and benefited from the network of ideas and kind mentorship I received from the members of my committee: James A. Levin, Hugh “Bud” Mehan, Carol Padden, and Olga Vasquez. Finally, a debt of gratitude is owed to Beth Ferholt, Sonja Baumer, and Peg Griffin for their continuous supplies of intellectual and emotional “oxygen” – without it I would have never found myself breathing… or completing this document.
VITA

1997       Bachelor of Science, Saint Joseph College

1999-2001  Web Librarian, California State University, San Marcos

2000       Master of Library & Information Science, San Jose State University

2003-2004  Teaching Assistant, Department of Communication, University of California, San Diego

2004-2005  Editorial Assistant, Mind, Culture, & Activity Journal

2005-2006  Instructional Technology Librarian, Social Sciences & Humanities Library, University of California, San Diego

2007       Doctor of Philosophy, University of California, San Diego

Fields of Study

Major Field: Communication (Communication and the Person)

Studies in Human Information Processing and Culture
Professors Michael Cole, Carol Padden, and Olga Vasquez

Studies in Education
Professor James Levin

Studies in Library & Information Science
Professor Debra Hansen, San Jose State University

Studies in Sociology
Professor Hugh Mehan
With a core aim of mitigating disadvantage associated with the digital divide, this study attempts to articulate perspectives on intervention design that support transformative practice - those activities that extend children’s knowledge and forms of expertise. With this primary goal in mind, recent critical research in multiliteracies, new literacies, and popular literacies is drawn on to support the articulation of a Critical Multiliteracies (CritMLs) framework for informal learning design. Using
Fifth Dimension (5D) afterschool programs as laboratories for intervention design, CritMLs-informed activities were implemented to explore the extent to which youth cultures and literacies can be used as textual gateways to more educative practices associated with the Age of Information. Research in boundary crossing provided a theoretically guided approach to assessing the impact of designs on participants. Findings suggest that boundary crossing represents a useful unit of analysis for exploring children’s uptake of new practices and movement toward mastery of existing competencies. Study results also indicate that youth cultures and popular literacies can be leveraged as powerful and relevant components of learning design but there are limitations to their utility due to their location in gendered ecologies that limit the existence of relationships between play practices and adult forms of expertise.
CHAPTER I
INTRODUCTION: A RATIONALE FOR ADDRESSING DIGITAL DIVIDES VIA INFORMAL LEARNING DESIGN

I document here findings from research conducted from 2002 to 2006 which attempted to design learning environments and interventions to support participation by children in practices related to the critical and productive use of new information and communication technologies (ICTs). Using the San Diego County Fifth Dimension network of afterschool sites as a laboratory for experiments in informal learning design, I engaged in a program of research committed to addressing community-based digital divides as they relate to challenges associated with class, culture, and gender. Findings traverse specifically on one plain of concern: the challenge of designing technology-infused contexts where children might learn and develop those competencies and discourses characteristic of effective participation in the age of information. The study emerged from two core questions:

1. To what extent and in what manner can youth culture be used to inform the design of literacy events to support children’s interactions and development of competencies related to new ICTs?

2. How can researchers concerned with infusing voluntary, informal learning environments with educative, technology-rich activities assess the impact of intervention designs?

The dissertation, then, has grown from these initial questions and my attempts to design interventions which would support new literacies acquisition for both boys and girls using a critical multiliteracies (CritMLs) framework (an approach I will develop
later in greater detail). Core characteristics of the CritMLs approach include the use of youth cultures as gateways to developing more adult-sanctioned literacies by strategically leveraging the intertextuality of popular and more scholarly electronic games, websites, printed materials, music, literature, television, and film.

By developing and applying the principles of CritMLs to the design experiment framework of Fifth Dimension-based learning environments, certain characteristics of participation, literacy practices, play texts, and gender began to emerge. Questions were answered regarding the role popular culture and texts might play in supporting learning and how to capture these processes for scholarly communication. Boundary crossing theory was drawn on to develop a way of articulating how and when efforts were relevant to imparting new practices to participants. The challenge of gendered participation in activities related to new ICTs were made visible and addressed through iterative design and redesign. Intertextual chain and boundary object analysis was articulated as one method by which researchers can analyze play practices and texts, leading to the (unexpected) elucidation of one mechanism by which gendered digital divides can emerge and be sustained across contexts. The core findings of the dissertation, then, are as follows:

1. Children’s repertoires of practice can be successfully extended by using electronic games, popular texts, and play practices as contextual gateways to engaging in activities associated with new information and communications technologies (ICTs).
2. Learning practices in informal learning environments can be captured by making visible the processes of boundary crossing among participants. Identifying and reporting on boundary crossing as an activity is best articulated via analyses of ethnographic observations and artifacts of participation.

3. The first two findings must be accompanied, however, with a third, unexpected, but equally important finding: Computer and console games were found to be related to print/electronic texts, communities, and literacy practices in gendered relationships which are oftentimes unfavorable to girls’ participation and learning of ICT competencies and various other groups of related literacies.

*Why ICT Literacies?*

As noted earlier, new ICT literacies are gaining greater attention as a set of competencies that are required to participate fully in an information economy. Responding to research suggesting that undergraduates lack the skills to interact effectively with new ICTs when they begin college, representatives from the University of California, the California State and Community College Systems (with an additional 6 large university systems) have formed a collaboration with Educational Testing Service (ETS), the National Higher Education Information and Communication Technology Initiative (NHEICTI), to design assessments measuring undergraduates’ abilities to interact critically with infrastructures of information (Educational Testing, 2003; Foster, 2006; Young, 2004, 2005). Recommendations of the NHEICTI whitepaper include limiting access to undergraduate classes and certain

For disadvantaged students, such a development (at the very least) could add required course credits and time-to-degree for an education they are already struggling to afford. A greater concern may be that such assessments might delay or discourage students’ enrollment in courses which require successful completion of a new ICTs assessment. Currently, new ICTs receive little attention in public K-12 schooling owing to their relative absence from state and national standards and assessments (Leu, Kinzer, Coiro, & Cammack, 2004). Furthermore, when schools support interactions between children and technology, activities often focus on “drill and skill” or remedial instruction rather than providing contexts for more critical engagement (Smolin & Lawless, 2003; Warschauer, Stone, & Knobel, 2004). The research by Warschauer, Stone, & Knobel illustrates how the digital divide has transformed from problems of access to problems of differing contexts of interaction.

The specific contradictions present in the particular case of ICT literacy assessments include: 1) the role educational policy-making might play in the amplification of disadvantage by creating models of educational access which favor those students with superior access and richer contexts for interaction with new ICTs and 2) the disconnect between K-12 curricula and the types of literacy needed for college and career success as they relate to new ICTs.

My first point demonstrates how policy-making influenced by skill-based “literacies” frameworks (outside of the critical multiliteracies line) can see literacy as
multiple and changing due to contingencies associated with the information age, yet perpetuate inequities associated with technology access and the digital divide. For example, questions on the ETS ICT assessment assess students’ ability to gather information from multiple web and email-based scenarios and apply that knowledge to a problem set out by a fictional manager (see Figure 1). To base access to courses or academic majors based on a student’s performance on such measures seems inappropriate since all students don’t have equal access to contexts which support these types of interactions with email and the web.

Figure 1 Screenshot: ICT Literacy Assessment Web Demo (Educational Testing Service, 2007).
My second point leads to the suggestion that if schools are indeed incapable of responding pedagogically (through representation in national standards and state curricula) to mitigate inequities associated with the digital divide, it makes sense to consider the role informal learning environments (ILEs) might play in the design and implementation of interventions that support engagement by children in practices related to new ICT Literacies. I develop this argument further in the section that follows.

Making the Case for Informal Learning Design

Any exploration of the integration of new ICTs into informal learning design must first consider how it came to be that informal learning became an intellectually viable object of analysis for the study of literacy. In their 1982 essay, Patricia M. Greenfield and Jean Lave (Greenfield & Lave, 1982) draw distinctions between formal and informal learning environments. They suggest that in American settings, distinctions between formal education (FE) and informal education (IE) may be based on the following dichotomies (Greenfield & Lave, 1982, 183):

1. Context: Embedded in daily life (IE) versus set apart from the everyday (FE).
2. Responsibility: Learner obtains knowledge voluntarily (IE) versus teacher imparting knowledge and skills (FE).
5. Continuity: Value placed on tradition (IE) versus emphasis on change and discontinuity (FE).


7. Mode of Instruction: Teaching via demonstration (IE) versus teaching by verbal presentation and questioning (FE).

8. Social Motivation: Motivated by social contribution (IE) versus less strong social motivation.

Along similar lines as Greenfield and Lave (1982), Sylvia Scribner and Michael Cole (Scribner & Cole, 1973) draw distinctions between informal learning and literacy and those competencies acquired in school.

Anthropological studies offer helpful information about these relationships and important clues about the characteristics distinguishing different forms of social organization of education. These forms are generally classified as informal education, formal education in non-institutional settings, and the formal education of the school. (Scribner & Cole, 1973, 554)

Importantly, these scholars argue that the IE/FE dichotomy represents false essentialisms researchers have drawn between formal and informal learning, that each coexist in traditional and western school-based educational settings. Yet, they maintain it is useful to talk about informal learning environments as contexts separate from school. Greenfield and Lave suggest that informal settings and their associated instructional techniques particularly shouldn’t be relegated as incompatible for application to formal schooling.
…we should guard against the educational hegemony of particular techniques associated with formal schooling. Future education need not look only to the school for its inspiration. It can also draw upon the rich pedagogical heritage of informal education.” (Greenfield & Lave, 1982, 207).

The authors thus draw attention to the existence and importance of informal literacies in school settings and seem to anticipate what Dyson and others in the popular literacies camp argue about the processes of meaning-making and negotiation that children engage in as they develop and interact with both school and popular literacies. From this early cross-cultural literacy work emerges research concerned with the design of informal learning environments which attempt to capitalize on the potentiality for more motivating and engaging learning contexts.

Afterschool Informal Learning Environments

As mentioned previously, one implication of the NHEICTI’s attempt to design ICT skills assessments is that those disadvantages associated with the digital divide could be magnified at the undergraduate level due to the gap which exists between K-12 curricula and the skills needed for full participation in higher education. I suggest that informal learning environments must increasingly provide contexts where students can engage in the new ICTs practices not supported in their community’s schools. In this way, ILEs will extend their role beyond simply providing access to new technologies for disadvantaged youth and become powerful contexts for transformative sets of practice.

In the section that follows, I will highlight one example of a well-developed ILE, the Fifth Dimension (5D), which has a fairly long history of creating contexts for
children’s access and meaningful participation in activities related to new technologies. I suggest that whereas the intellectual theory guiding the design of the 5D places it in a unique position to respond to issues related to the digital divide, the Fifth Dimension is not influenced specifically by the frameworks associated with critical multiliteracies research. A significant component of my research has been to introduce these perspectives to the 5D framework.

*The Fifth Dimension*

Michael Cole’s Fifth Dimension work, begun with Peg Griffin and others in 1981, engages in the strategic design of informal learning environments to support literacy acquisition by children and adolescents visiting various afterschool programs. The concern with children’s interactions with more skilled peers and learning through play contexts speaks to ideas shared by cultural-historical and socio-cultural scholars that the development of children is tied inextricably with their participation in practices which support individual and cultural transformation (Cole, 1996; Rogoff, 2003).

Work within 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 Y. & Kakkainen M, 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 original approach to experimental design of informal learning environments: the Fifth Dimension (Cole, 1996), particularly claim 2 which outlines 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.

The Fifth Dimension is also informed by and helped shape ideas shared by socio-cultural scholars suggesting that the development of children is tied inextricably with their participation in practices which support individual and cultural transformation. Vera John-Steiner and Barbara Rogoff offer some recent examples of related work (John-Steiner, Panofsky, & Smith, 1994; Rogoff, 2003). Rather than conceiving development as a progression of the individual toward some biological or intellectual endpoint, these researchers see development as mutually constituting both the individual and the culture in which they are embedded. Along these lines, the power of learning lies in its ability to transform an individual’s potential for action in the world.

**Structure of the 5D as an Experiment in Learning Design**

An experiment in informal leaning design, Fifth Dimension research has recently drawn on work informed by the Design Experiment approach initially introduced by Ann Brown (1992). Like Brown and others with similar commitments, the project develops new approaches to designing instructional activities while contextualizing interventions within localized sets of practices and contingencies.
Integral to the 5D design is its role as a university-community collaboration that places undergraduate students from the fields of Psychology, Communication, and Human Development in an afterschool program where they work as field ethnographers conducting qualitative research as they engage in homework help and educative play activities with K-6 child participants.

Cole and Griffin originally designed the 5D so that out of joint activity (guided by the use of task cards - written artifacts designed to mediate play activity) interactions could become structured such that play activities and educative activities have the potential to merge, enabling children to expand their repertoires of practice beyond the realm of entertainment. Cole’s theorizing of the Fifth Dimension suggests that the contradiction between educative and play leading activities is in many ways productive but the type of learning that emerges is dependent on the particular social and cultural milieu activities are introduced into.

Each 5thD mixes several leading kinds of activity – affiliation, peer, education, and play – but the nature of the culture to emerge from this mixture differs. When placed in the institutional context of the BGClub, where play dominates, the educational features of the 5thD render it relatively more serious and education-like (quieter). When placed in the institutional context of the Library, the play feature of the 5thD makes it more play-like than its sober-minded educational setting (noisier) (Cole, 1996, 308).

The dissertation represents my attempt to build on Cole and Griffin’s Fifth Dimension work by designing contexts which extend children’s goals and play practices toward an educative, traditionally adult-oriented set of practices centered around new information and communication technologies (ICTs). Put another way, my learning
designs were introduced into an already complex, informal setting with its own idio-
culture (the 5D) in place. Cole uses Gary Alan Fine’s (1987) definition of culture and
idio-culture to characterize the shared culture that grows up over time in the 5D (Cole,
1996, 302).

“Culture includes the meaningful traditions and artifacts of a group; ideas, behaviors, verbalization, and material objects” (p. 124). He calls
the cultural formation that emerges in a small group an idio-culture, which he defines as a “system of knowledge, beliefs, behaviors, and
customs shared by members of an interacting group to which members
can refer and that serve as the basis of further interaction…” (Cole,
1996, 302).

If as Cole suggests, context represents “a qualitative relation between a minimum of
two analytical entities (threads), which are two moments in a single process” and
“[t]he boundaries between ‘task and its context’ are not clear-cut but ambiguous and
dynamic” (Cole, 1996, 135), then the ICT practices represented but a single thread
among many in a multi-braided setting. The children and their interactions as outlined
in the case studies later on must then be understood by their membership in the wider
idio-culture of which they were apart: the Fifth Dimension.

*Developing Research Questions at a Pilot Field Site*

In 2002, I began working in the Fifth Dimension (5D) as a graduate student
researcher. I was concerned with integrating new information and communications
technologies in to informal learning environments and supporting children in their
acquisition of related literacies. I brought to my research a background in library and
information science and a set of core concerns surrounding community responses to
the digital divide – disadvantage associated with the unequal distribution and differentiation of use of technologies of information and multimedia.

As a setting, the 5D is characterized by its openness to a multiplicity of goals (of which the child’s goals are a key component). For adults in the community: parents, community administrators, and educators, one primary goal (among many) of the Fifth Dimension is to encourage children to engage to a greater extent in practices related to reading, writing, and problem solving. After spending any time in the Fifth Dimension, one quickly realizes, however, that activities that stray too far from the child’s own goals and agenda for play are unpopular and children rarely voluntarily participate.

In the beginning, he would tell me that he didn't need his folder and didn't want to use it or the "stupid task card." [MO: 11/4/02] (cited by Nocon, 2005)

Honorine Nocon addresses this conflict between goals in the Fifth Dimension in her 2005 article. Using resistance as an object of analysis, Nocon suggests that children resist school-like activities and artifacts when present in the afterschool program (Nocon, 2005). Nocon goes on to argue that because the Fifth Dimension is permeable to certain forms of resistance, due to its more flexible rules and non-traditional views on behavior, productive forms of participation can be negotiated and change the terms and outcome of interaction.

I made similar observations of children’s resistance to educative activities but these experiences were complicated by other, more positive observations of joint activity in the Fifth Dimension which suggested that the most productive interactions
were those where youth participants felt comfortable enough to cross boundaries toward new texts that might extend their own repertoires of practice. When I heard a site was scheduled to open at Horizon Elementary School, I began thinking about how I could respond to children’s resistance to educative activities and began to think of ways I could integrate an extremely popular activity to the 5D: console gaming activities such as Playstation or Xbox. I wanted to use video gaming as a context that might be extended toward educative activities but surmised that if I left gameplay completely unstructured, ancillary activities related to understanding new technologies, reading, writing, etc., would be neglected. How to accomplish this leap? Toward what practices?

Activities involving Xbox began during the spring of 2003 at the Horizon Elementary Fifth Dimension site. The children were really excited to get the opportunity to play Xbox because it represented for them, the polar opposite of what an educational game looks like.

Once the boys found out they were aloud to play Xbox they all got so excited… After an hour of playing games and getting to know the kids better we all left for the day. [AS: 10/6/03]

A game that didn’t have violent themes or a male protagonist was selected for the days’ gameplay in which the children would take turns playing. To reconcile the

1 All names of participants at research sites have been changed. Spelling and grammar from fieldnotes have been occasionally modified to improve readability while attempting to preserve the authors’ intent.
contradiction between play and educative activity, I initiated a task (within the domain of Xbox play) that the children performed as part of receiving their turn on the Xbox. More specifically, the children were called upon to either search the Web or read through a strategy guide (that was brought to the site) for a code, cheat, or game instructions that would help players achieve greater success in the game. After locating such a code, tip, or cheat, children were to print out the cheat, and write down how to use it in a shared notebook.

I was told to play the X-Box game Blinx with some of the children, and pay specific attention to how they interacted with game instructions, as well as a cheat guide that was brought in. The children would look in the cheat guide before playing a level, and when they were finished they had to write a tip that the others could read before playing. …I began to switch off playing with him, asking for instructions and tips as I played. Not surprisingly, Sonny’s attention and focus were more solid than at any other time I have worked with him. He explained to me that I must hold the X button to suck in objects, and then tap it to shoot the objects back out at the monsters. He also explained how tricks such as pausing the enemy's movements, collecting money, and eliminating secret characters all work. [BD: 10/13/03]

Through his fieldnotes, BD describes how Sonny engaged in the reading, writing, and narrative activities that will support his development of expertise in practices beyond the game (see Figure 2).
A double jump is a jump where you can jump twice. Use a double jump to reach a higher place or to jump out of the water when you're drowning.

A tip

When the Benito Brothers appear on the wall or floor, you have to shoot them or they will take your gold.

Figure 2 Scan of a tip from hints book (Sonny, age 11).

Along similar lines, another child (Greta) used the strategy guide to gather a tip to share (see Figure 3).

It's hard and also it's fun. If you are good at it. To flip and jump you press a jump button two times. You want to try to collect golden stars and blue, red, and yellow stars.

Figure 3 Scan of a tip from hints book (Greta, age 11).
Antonio also authored a tip for the hints book but this child took to a web search engine to find information. Antonio then printed out the tip and pasted it into the hints book along with a written description (see Figure 4).

![Image of a tip from hints book](image)

**Figure 4** Scan of a tip from hints book (Alan, age 12).

The series of gaming interactions that occurred between Greta, Alan, Sonny and the undergraduates participating in the Horizon Elementary School Fifth Dimension over the fall of 2003 stayed with me. I was excited by the idea that information literacy skills such as searching the web, basic literacies such as reading and writing, and critical thinking processes could all be extended via structured participation in gaming. Although I had some initial success with this intervention, my optimism was tempered by low participation rates by girls. I initially thought that since XBOX was a new
activity for the 5D, that girls perhaps weren’t so attracted to these games and activities as to the more established games in the 5D as well as those already loaded on the computer lab machines. I also concluded that there was a possibility that the XBOX console itself (independent of the games loaded on it) seemed like a boys-only activity, thus driving girls toward other activities. Keeping these issues in mind, I suspected my ability to use “gaming play” and related texts as vehicles to introducing new literacy events was significant and vowed to return to it later. How could I accomplish these productive interactions in a theoretically guided way? It was in response to this question that I turned to recent research in literacy and semiotic theory.

Structure of Remaining Chapters

Of core concern in the chapters that follow is to describe the theoretically guided program of research on which this dissertation reports. In Chapter II, I will chart the trajectory of literacy (as a changing concept) in educational research and social theory. Attention will then turn toward describing three new conceptions of literacy: the New London Group’s Multiliteracies Pedagogical Framework, Leu and Kinzer’s New Literacies perspective, and Anne Haas Dyson’s Popular Literacies approach. Finally, I will frame each perspective as a valid and promising approach in order to derive from them a core set of principles, a Critical Multiliteracies (CritMLs) framework, for the design of informal learning environments organized around new ICTs.
If Chapter II articulates Critical Multiliteracies as the intellectual terms for this dissertation as a “problem of learning design” then Chapter III provides the criteria to organize and provide boundaries to our understanding of what the project itself hopes to accomplish and how to communicate those findings. With this goal in mind, I outline boundary crossing theory and research, first introduced by Susan Leigh Star and further developed by Yrjo Engeström, Etienne Wenger, and others, to articulate particular types of practice and social action which enable members of communities of practice to extend their knowledge and forms of expertise. I suggest that looking for boundary crossing among youth participants is a strategic and useful way of conceptualizing processes of lifelong learning and assessing the relevance of activities. In this sense, boundary crossing provided a theory to support goal-directed and iterative intervention design on behalf of the researcher. This chapter also outlines the methods of the study themselves bringing focus to the ethnographic framework for the study as a design experiment in which fieldnotes, interviews, video and screen capture, and multimedia designworks are the data sources.

Chapters IV, V, and VI build on the previous chapters by presenting the data upon which the dissertation rests. I present case studies from 2 research sites demonstrating the powerful ways in which programming can respond to youth cultures to extend literacy practices. I also use the cases to problematize my own findings and address the way in which the trajectory of the dissertation research reflects my own attempts to be reflexive about the design process and my own role in mitigating digital divides. These chapters outline the findings which form the argument of the
dissertation and set the stage for discussion of a subset of unexpected findings and implications of the research to be explored in the final, concluding chapter.

In Chapter VII, I reiterate the central findings of the dissertation and use these findings as a jumping-off point to discuss a third strand of consideration in the work. I suggest that boundary object and intertextual chain analysis might be one fruitful route toward understanding the relationship between play, literacies, and gender. I discuss these findings as a set of implications to the fundamental questions about youth cultures and the role they should play in learning design and as a rationale and trajectory for future research.
CHAPTER II
FROM LITERACY TO CRITICAL MULTILITERACIES

The American Heritage Dictionary of the English Language dictionary defines literacy as:

1. The condition or quality of being literate, especially the ability to read and write. See Usage Note at literate. 2. The condition or quality of being knowledgeable in a particular subject or field: cultural literacy; biblical literacy ("Literacy," 2000).

This definition captures effectively two prevalent conceptions of literacy: literacy as attainment or skill in a particular field and literacy as the ability to read and write. Although the bulk of this paper charts the ways in which traditional conceptions of literacy have been challenged and renegotiated as social practices and intellectual objects of analysis, I begin by providing an example of the standard notions of literacy currently informing educational and public policymaking.

Stein, Hubbard, and Mehan’s research charting the San Diego City Schools’ attempts at curricular and organizational reform (Stein, 2004) provides an example of such standard notions of literacy. The Balanced Literacy Framework implemented in the San Diego City Schools conceives of literacy as the ability to read, write, listen, and speak (English).

The Literacy Framework provides a coherent structure for teaching reading, writing, listening, and speaking with a focus on making and conveying meaning. Based on student need, the teacher applies these studied approaches to develop reading, writing, and listening and speaking skills. (San Diego City Schools, 2004)
In practice, the Literacy Framework places students in 2 hour literacy blocks each day where they receive focused instruction to bring them “up to grade level” in print literacy. Stein, Hubbard, and Mehan suggest that this interpretation of literacy has resulted in a set of reforms that are considered by many as being overly narrow. This critique has contributed to a fracturing of the district – limiting the potential for organizational cohesion and the sustainability of reforms (for better or worse). This example also aptly illustrates the source of critique and social conflict over definitions of literacy that many feel are convenient to agendas committed to a social status quo – ideologies that have historically perpetuated social exclusion and disadvantage.

Reconceptualizing Literacy

Attempts to re-conceptualize notions of literacy often involve theories of power (Fairclough, 1992; Foucault, 1972; Freire, 1968; Marx & Engels, 1848/1978), culture (Scribner & Cole, 1981; Street, 2003), education (Greenfield & Lave, 1982; Serpell, 1976), and the forces of globalization (Drucker, 1993). The general movement away from behaviorist models to socially situated conceptions of literacy (Gee, 2000) and from skill-based models to more critical frameworks (Freire, 1968) characterizes what James Gee refers to as the “social turn” in “New Literacy Studies” (Gee, 2000).

Other re-conceptualizations of literacy explore the usefulness of applying the concept of literacy to meaning-making practices beyond print, such as film (Cole & Keyssar, 1985) and new ICTs (Smolin & Lawless, 2003). Such literacy theorists argue that not only is it appropriate to talk about domain-specific literacies (e.g. film
literacy, media literacy, etc.), but that conceptions of literacy focused solely on reading and writing are insufficient to describe and support theories of learning and pedagogical design in the age of information.

Once we see this multiplicity of literacy (literacies), we realize that when we think about reading and writing, we have to think beyond print. Reading and writing in any domain, whether it is law, rap songs, academic essays, superhero comics, or whatever, are not just ways of decoding print, they are also caught up with and in social practices (Gee, 2003, 14).

The Critical Turn in Education and Literacy Research

Following Gee and those with similar perspectives, the Multiliteracies Pedagogical Framework, the New Literacies perspective, and the Popular Literacies approach represent new ways of theorizing about literacy. These approaches will become more important later on as I examine this work with respect to my core research concern: learning design for informal settings. Any discussion of these new, expanded approaches to literacy, however, must begin by discussing critical movements in education and literacy. The critical literacy movement emerged in the 1970s and 1980s to challenge traditional structures of literacy as modernist constructions that perpetuate inequities of the social status quo.

Locating Disadvantage in the Social Formation

The work of Paulo Freire and Pierre Bourdieu is particularly important to the shaping of this critical turn in literacy studies. As Luke and Freebody commented (Luke & Freebody, 1997, 13):

Throughout the 1970s and early 1980s, the term critical literacy was probably most strongly affiliated with the work of Freire and
colleagues, first in neocolonial contexts and later in the United States from the proposition that language and literacy, and control over how issues, problems and aspects of the world are “names,” are directly tied to issues of political power, and that, reconstructed, literacy education could therefore be used as a force for political liberation and emancipation for disenfranchised social groups.

Like Freire, Bourdieu influenced new, critical understandings of literacy and education as forms of oppression though his notions of cultural capital and habitus (Bourdieu, 1973). Bourdieu’s notion of habitus (the beliefs, field of ideas, or way of being for a particular person) suggests that individuals’ choices in life are limited by the ideational field in which they find themselves. These sets of ideas form the types of social and cultural people have access to. People with working class forms of social capital are more likely to self-select themselves for low-wage factory jobs, thus reproducing the class structure. Following Bourdieu and Freire, Jay MacLeod and Paul Willis’s work characterizes critical research form the 70s and 80s by calling attention to the role cultural formations play in the social order.

In Paul Willis’ (1976) study of a British town where working class jobs and role models have disappeared, lower class “Lads” find their future railroaded. They respond by acting out and resisting school. Willis argues that the Lads’ behavior isn’t deviant but culturally located within the working class/shop floor mode of life. Consequently, school doesn’t reward working class cultural norms and the resistance the Lads exhibit only serves to guide them into low-wage, poor opportunity positions after they leave school.

Counter school culture is part of the wider working-class culture of a region and ultimately of the nation, and, in particular, runs parallel to what we might call
shop-floor culture. The located anti-school culture provides powerful informal criteria and binding experiential processes which lead working-class lads to make the ‘voluntary’ choice to enter the factory, and so to help to reproduce both the existing class structure of employment and the ‘culture of the shop floor’ as a segment of the overarching working-class culture (Willis, 1976, 188).

Jay McLeod makes a similar argument in his 1987 ethnographic study of a high school where stereotypical roles of students are reversed. In the case he analyzes, Afro-American students, “the Brothers”, conform while Euro-American students “the Hallway Hangers” rebel.

MacLeod argues that the cultural formation within which the Hallway Hangers live reinforces their racism and rejection of socially “accepted standards of behavior”. Although the Hallway Hangers hate their community and want to get out, they must conform in order to leave. In the end, their resistance is unproductive. McLeod’s observations follow Bourdieu’s contention that there exists a dialectical relationship between the habitus, social institutions (in this case school), and educational/economic outcomes. In this case the habitus (working class culture) of the Hallway Hangers did
not carry the type of cultural capital that was rewarded by schools. Thus, the school reproduced the socio-economic status quo by exchanging economic capital (in the form of access to jobs) for the cultural capital middle-class students brought with them to school.

McLeod’s study also follows the Freireian line of research which seeks to reconcile the Marxian salience of class with a phenomenological conception of individual agency and social action via conscious acts. By making explicit the Hallway Hangers’ refusal to conform, McLeod provides evidence of their resistance (though unproductive) to the ideologies (middle class culture or habitus) that the school rewards. In the section that follows, I describe how researchers working within the Latino Critical (LatCrit) framework were able complicate McLeod’s and other similar findings by locating transformative resistance (holding the potential for undermining the reproduction of inequity) in the organizing practices of Chicano students in two separate movements.

Moving Beyond Class: Latino and Critical Race Theory

Willis and MacLeod succeed in adding complexity to critical models of education through their use of cultural capital to explain the ways in which discrimination can be based on an individual’s access (or exclusion from) the ideas and beliefs they need to succeed. As critical literacy research moved into and beyond the 1990s, Feminist, Latino Critical Theorists (LatCrit), and Critical Race Theorists (CRT) argue that Critical Literacy places too heavy an emphasis on the primacy of class as the basis of oppression. These researchers argue that previous studies of
resistance were too narrow to describe adequately students’ awareness of, and potential for, social action. They call for resistance to it, the potential for agency and empowerment.

Daniel G. Solorzano and Dolores Delgado Bernal examine student resistance in the 1968 East Los Angeles school walkouts and the 1993 UCLA student strike for Chicano/Chicana studies (2001). They argue that in order to recognize productive resistance, we have to redefine resistance to include what they describe as transformational resistance.

We argue that transformational resistance framed within the tenets of a CRT and LatCrit framework allows one to look at resistance among Students of Color that is political, collective, conscious, and motivated by a sense that individual and social change is possible (Solorzano & Bernal, 2001, 320).

While agreeing with Willis and McLeod that school is indeed oppressive, Bernal and Solorzano demonstrate that power can be challenged in school. For them, spaces for empowerment lie in informed, resistive social action. Schools, they argue are sites for empowerment as well as oppression.

Critical race researchers acknowledge that educational institutions operate in contradictory ways with their potential to oppress and marginalize coexisting with their potential to emancipate and empower. Likewise, a critical race methodology in education recognizes that multiple layers of oppression and discrimination are met with multiple forms of resistance (Solorzano & Bernal, 2001, 314).

While Solorzano and Bernal’s work effectively locates resistance and empowerment in the public school system, other critical literacy research engages in the design of critical interventions to support student’s understandings, engagement with, and
production of, literacy texts as well as the sources of power in society (see e.g. Lankshear & McLaren, 1993).

Critical pedagogy is more than a desacralization of the grand narratives of modernity, but seeks to establish new moral and political frontiers of emancipatory and collective struggle, where both subjugated narratives and new narratives can be written and voiced in the arena of democracy (McLaren, 1991, 173).

From Critical Literacy to Critical Literacies

The movement from critical theory of education and literacy toward the plural critical “literacies” draws upon Foucault and Fairclough’s work describing the role of discourse in society. For these theorists, school literacy represents just one of many discourses serving to discipline individuals toward particular dispositions and worldviews, each with ideological consequences. This deepening relevance of sociolinguistic analysis and expanded view of literacies was further refined by the New London Group and their associated Multiliteracies Pedagogical Framework.

Multiliteracies

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 extend the critical literacies approach by developing a literacy framework which responded to the technological developments and economic changes associated with the new economy which emerged during the late 1990’s. In short 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 design of social futures is integral to the multiliteracy emphasis on the importance of pedagogical responses to changes in the realities of working, personal and public life.

*Working Lives*

The multiliteracies framework calls attention to the idea that current changes to working lives may be exemplified by the movement towards post-Fordist/fast capitalist economic realities.

The new fast capitalist literature stresses adaptation to constant change through thinking and speaking for oneself; critique and empowerment; innovation and creativity; technical and systems thinking; and learning how to learn. All of these ways of thinking and acting are carried by new and emerging discourses. (The New London Group, 2000, 12)

James Gee argues that it is precisely the new economy’s emerging discourses which threaten to magnify inequities between disadvantaged, lower class students and those growing up in middle to upper-class environments (Gee, 2000). Gee presents as an example the discourse of two teenagers recorded during interviews about their lives, interests, and activities. He suggests that the new capitalism privileges the ability to engage in discourse in which “people see and define themselves as a flexibly re-arrangeable portfolio of the skills, experiences and achievements they have acquired through their trajectory through project space as team members of communities of practice operating as distributed networks to accomplish a set endeavor” (2000, 61).
Gee found that an advantaged teenage girl’s interview demonstrates that she was able to negotiate skillfully such discourse, whereas a lower class girl “respond[ed] always from her lifeworld, unconnected to cosmopolitan and global concerns and networks connected to public-sphere Discourses” (2000, 62). The latter teenager’s inability to engage in the discourse of “portfolio people” may limit her potential for flexible action in the new economy. Gee further suggests that a multiliteracies pedagogy must respond to these issues by first addressing how to support the engagement of disadvantaged students in discourses that open professionalized work to them, but then, just as importantly, upper-class students must be educated to think “critically” (2000, 63) about loci of power and social justice.

*Public Lives*

Gee and others in the New London/multiliteracies camp argue that pedagogy should also respond to changes affecting the notion of “the public”. They argue that the notion of public life has been eroded by the market logic guiding institutions traditionally informed by a “strong state” model of influence. According to this view, the homogenizing model of state-controlled education, the role of literacy pedagogy was to assimilate diverse communities and language minorities and educate them in standardized state-sanctioned discourses. The weakened role of the state that emerged following the end of the Cold War has thus left a vacuum in terms of what “the public” or “the civic” should or can mean when confronted with the continuing reality of linguistic and ethnic diversity.

The decline of the old, monocultural, nationalistic sense of ‘civic’ has vacated a space that must be filled again. We propose that this space be
claimed by a civic pluralism. Instead of states that require one cultural and linguistic standard, we need states which arbitrate differences. (The New London Group, 2000, 15)

In the same spirit, schools 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).

**Personal Lives**

As a pedagogical framework, the multiliteracies approach seeks to negotiate the changes in work and public lives associated with increased influence of market sensibilities and the realities of a diverse, globally networked workplace. These changes are perpetuated by globalized cultural narratives shaped and transmitted by mass media. New London researchers argue that consumer media work in contradictory ways in that, on one hand, specialized programming allows for the splintering of specialized communities of practice. Yet, on the other hand, the group also points to the example of youth programming as evidence of the overwhelming consumerist narratives that capture the personal lives of children with little diversity of message or representation.

Personal lives are further affected by forces of media programming via what researchers term the “conversationalization of language” that re-situates culturally private narratives within a publicized discourse. Authors writing within the multiliteracies framework suggest that processes of conversationalization of private discourse have the potential to exploit and trivialize community lifeworlds (New
A pedagogy of multiliteracies supports and makes visible the potentiality for engagement with and valuing of diverse community narratives.

**Meanings and Designs**

To respond to these changes in work, public, and personal lives, researchers associated with the New London Group suggest that literacy pedagogy must integrate new conceptions of design and meaning-making. For instance, design as a concept takes on a tri-layered structure including available designs, designing, and the redesigned. “Available designs” refers to the discourses that students and educators have to choose from once they enter a learning context. Designing represents the semiotic, iterative process of meaning-making through interaction with various discourses or available designs. By the redesigned, the multiliteracies perspective suggests that the processes of meaning-making change both the discourses/designs as well as the designers themselves.

Designs thus form the building blocks of what the New London researchers refer to as metalanguages or grammars of meaning-making. In their 1996 manifesto, the authors outline 6 metalanguages:


By speaking in terms of design metalanguages, the authors can broaden the discussion of what constitutes the boundaries of literacy. They emphasize in particular the
importance of multimodal design as it addresses the interconnections between design languages.

Drawing attention to processes of design and associated multiple modalities informs the multiliteracies pedagogical framework by providing a set of meaning making practices that can be at once recognizably culturally situated, supportive of both instruction as well as critical engagement, and result in transformation of both discourse and participant. The multiliteracies approach places literacy at the center cultural, economic, and technological change. Sociolinguistic analysis provides a vocabulary in which literacy is one of many competing discourses with its own set of ideological affordances. This emphasis on discourse, however, results in a downplaying of the specifics of technology and the associated competencies students might master in addition to other strategic discourses. As we move on to the New Literacies perspective, the emphasis shifts toward core issues related to interacting with particular structures of information and communications technologies.

*New Literacies*

The multiliteracies and new literacy approaches are closely related. Rooted in a sociolinguistic approach to pedagogy and education, the multiliteracies framework seeks to make visible the discourses of power, economics, and technology that shape students, educators and reorder notions of just what counts for literacy (in general). Critical framing of literacy plays a central role in multiliteracy advocates’ efforts to support disadvantaged students in understanding the structures and discourses shaping their lifeworlds and engaging advantaged students in conceptualizing social justice.
The New Literacies perspective, developed by Donald Leu, Charles Kinzer, Julie Coiro, and Dana Cammack, also emphasizes the importance of critical literacies. The two approaches differ in that the emphasis in Multiliteracies is on “multiple discourses”, “multiple designs”, and “multiple metalanguages” to support students and educators as they navigate through changes in lifeworlds. By contrast, the New Literacies perspective emphasizes “new contexts,” “new information and communications technologies,” and “new practices/competencies” as central to students’ full participation in the information age. These differences are manifested in 10 principles guiding the New Literacies perspective:

1. The Internet and other ICTs are central technologies for literacy within a global community in an information age.
2. The Internet and other ICTs require new literacies to fully access their potential.
3. New literacies are deictic.
4. The relationship between literacy and technology is transactional.
5. New literacies are multiple in nature.
6. Critical literacies are central to the new literacies.
7. New forms of strategic knowledge are central to the new literacies.
8. Speed counts in important ways within the new literacies.
9. Learning often is socially constructed within new literacies.
10. Teachers become more important, though their role changes within new literacy classrooms. (Leu, Kinzer, Coiro, & Cammack, 2004)
These ten principles highlight the view that in order to fully participate in the information society individuals need to possess competencies in these new, and ever changing literacies. I attempt to describe each principle briefly in the subsections that follow.

\textit{Principle 1: ICTs are Central Technologies for Literacy}

Leu and colleagues (2004) place the Internet and new information and communications technologies at the center of their reinterpretation of literacy. From this perspective, the emergence of new ICTs makes visible the existence of other modalities besides print and text-based reading and writing that matter in terms of what’s required for full participation in the information age.

\textit{Principle 2: New ICTs require New Literacies}

The notion that new ICT-based modalities are essential for students to learn anticipates the contention that new modalities/literacies are also associated with these new literate practices. Some examples of new literacies given by the authors include:

1. Using a search engine effectively to locate information;
2. Evaluating the accuracy and utility of information that is located on a webpage in relation to one’s purpose;
3. Using a word processor effectively, including using functions such as checking spelling accuracy, inserting graphics, and formatting text;
4. Participating effectively in bulletin board or listserv discussion to get needed information;
5. Knowing how to use e-mail to communicate effectively; and
6. Inferring correctly the information that may be found at a hyperlink on a webpage (Leu, Kinzer, Coiro, & Cammack, 2004, 1590).

Principle 3: New Literacies are Deictic

Central to the New Literacies Perspective is the notion that one essential characteristic of new literacies is that they are dynamic and transitory. The New Literacies group uses deictic, a linguistic term for words (e.g. now, today, here, there, go, and come) whose meaning changes based on temporal and contextual considerations, to capture the centrality of change as a defining characteristic of (new) literacy. They suggest that three aspects of literacy are demonstrative of its deictic nature: “…technological change, envisionments of new literacy potentials within new technologies, and (3) the use of increasingly efficient technologies of communication that rapidly spread new literacies (Leu, Kinzer, Coiro, & Cammack, 2004, 1591).”

Principle 4: Transactional Model of Literacy and Technology

Similar to the Multiliteracies notion of the designed and the redesigned, a transactional model of literacy and technology describes a reciprocal relationship between students, technologies and literacy practices. In this sense, through interaction, both the student and the “forms and functions” (2004, 1593) of literacy are negotiated and renegotiated. Put another way, those in the new literacies camp suggest that as individuals become shaped by the technology, they, in turn, are also shaping and re-shaping the terms of interaction and the very technology itself.

Principle 5: New Literacies are Multiple in Nature
The New Literacies authors explicitly cite the New London Group in their definition of literacies as multiple. Their notion of a multiplicity of literacies across diverse social contexts is influenced directly by the multiliteracies perspective. Yet, their emphasis is clearly on a technological source, the Internet and new ICTs, as the source for multiple literacies rather than on linguistic discourse and changing social lifeworlds.

Principle 6: Centrality of Critical Literacies

As mentioned previously, the New Literacies Perspective places importance on engagement and the development of successful competencies in response to the emergence of new information infrastructures and technologies. Although not elaborated upon in depth, the critical literacies movement is cited as one approach that might inform a new literacies curriculum.

…this open access also is one of the internet’s limitations; information is much more widely available from people who have strong political, economic, religious, or ideological stances that profoundly influence the nature of the information they present to others. As a result we must assist students in becoming more critical consumers of the information they encounter (Leu, et al, 2004, 1595).

Principle 7: New Forms of Strategic Knowledge

The tenet that new literacies relate not just to knowing how to use new ICTs, but how to leverage their informational value strategically and effectively. Students must be able to not only acquire competencies related to interacting with new ICTS but more importantly, students must understand how to make the most of those interactions. As examples, Leu, et al point to the development of search skills,
considerations of usability when producing webpages, and how to communicate effectively via videoconferencing, listservs, etc.

**Principle 8: Speed Counts in New Literacies**

Importantly, the authors point to the speed at which one can productively interact through new ICTs as one factor which will exacerbate the digital divide and risk perpetuating advantage for more affluent students. They argue that “[s]low readers and writers are challenged within traditional literacies; within the new literacies of the Internet these individuals will be left far behind (2004, 1595).”

**Principle 9: Socially Constructed Contexts for Learning**

Similar to Gee’s argument that the new economy requires “portfolio persons” capable of engaging in appropriate social discourses related to seeing themselves as carriers of particular skill-sets and parts of an extended network, the new literacies authors argue that “socially skilled learners” will become increasingly valued. Placed in opposition to “monastic learners”, social learners will possess the ability to develop competencies and engage in practices related to new literacies due to their ability to work in collaborative and networked groups.

**Principle 10: Changing Roles for Teachers**

The principles put forth by researchers working within the New Literacies framework locate students within a technologically driven environment where new literacies must be nurtured to secure employment and full citizenship in the information age. In addition to reordering their understanding of literacy, these researchers also reinterpret the role of teachers. Whereas the critical literacies
movement sees teachers as “cultural workers” whose main job is to negotiate discourses – hopefully reflexively with an eye on social justice, New Literacies researchers see teachers as orchestrators of literacy contexts. With students increasingly having different and oftentimes greater competencies than educators in many areas of literacy, teachers must now support the personalization and successful exchange of knowledge within complex learning environments.

**Popular Literacies**

With ties to all three areas of research previously covered, the Popular Literacies Approach takes out-of-school youth practices and places them in conversation with school-sanctioned literacies. It groups popular culture (often times rooted in new ICT practices), with the critical and pedagogical sensibilities of the critical and multiliteracies frameworks. The work of Anne Haas Dyson, Donna Alvermann, Margaret Finders and James Gee probably best exemplifies this approach.

*Negotiating Popular Narratives and School-Sanctioned Texts*

Much of the popular literacies work criticizes current movements in literacy for placing too much emphasis on drill and skill and for diminishing the role of play in learning and development (Alvermann, 2001). Citing John Seely Brown, Alvermann argues that “play enables the kind of free-form thinking needed in today’s highly technical world” (p. 120). Alvermann’s research with children interested in the Japanese anime cartoon, Dragon Ball Z, shows how play and its relationship to popular texts can be a powerful motivating factor for students to engage in literacy practices.
Anne Haas Dyson’s work provides a framework for understanding children’s relationships to popular narratives. She is concerned about the processes through which children react to, and renegotiate, these narratives as they engage in practices of meaning-making (Dyson, 1997; Dyson, 2003).

Children have agency in the construction of their own imaginations – not unlimited, unstructured agency, but, nonetheless, agency: They appropriate cultural material to participate in and explore their worlds, especially through narrative play and story (Dyson, 1997, 181).

Dyson argues that while children don’t always respond to artifacts of popular culture in predictable ways, there exists a significant opportunity for teachers to use popular texts as a way to improve writing skills. In short, the popular literacies that inhabit children’s worlds are often overlooked by schools yet they play an important role in children’s development, particularly when educators provide contexts for dialogues of meaning-making.

In “The Brothers and Sisters Learn to Write” (2003), Dyson argues that children use popular narratives as resources to both articulate their own diverse memberships as well as to make sense of school-sanctioned texts.

The comments of the cultural experts blend with ease into the thematic threads of this book. In using diverse cultural materials, children were indexing their generational, familial, community, and cultural memberships. These materials were constitutive of their sense of themselves and their own possibilities for joyful participation. When they were re-contextualized in school literacy practices, these same materials inevitably gave rise to symbolic, social, and ideological tensions. Such tensions are, no doubt, present too for all community members who aim to figure out how to engage, protect, support, and enjoy the children in their midst (Dyson, 2003, 207).
Dyson goes on to articulate the particular types of materials that the children appropriated from popular texts, (such as Star Wars and Space Jam), including: a) content (such as plots and names of popular figures), b) communicative practices (genres and ways of talking), c) technological conventions (e.g. graphic displays or ways of visualizing information), d) actual lines (actual song lyrics or movie lines), and e) ideologies (Dyson, 2003, 67-68). Importantly, popular literacies involve the children’s remixing of aspects of texts with school-sanctioned practices; development must be understood as part of the “constellation of communicative practices that comprised the children’s worlds” (Dyson, 2003, 173).

Along similar lines, but working with a feminist framework, Margaret Finders’ (1997) “Just Girls: Hidden Literacies and Life in Junior High” discusses the popular literacies that contribute to social contexts which serve to restrict girls’ options for social action and shape engagement with school-sanctioned literacy practices. Finders studies two groups of girls: the social queens and the tough cookies. She argues that hidden literacy practices or the “literate underlife” (contained in the popular magazines, books and informal writing) of each group of girls provides evidence that we can’t understand school sanctioned literacy practices as the only literacies that matter. To the contrary, whereas the school-sanctioned discourses constrain possibilities for social action, girls’ interactions with informal texts allow them to explore alternative narratives and engage in particular types of rebellion against sources of school and adult authority.

Rhetoric about becoming an adolescent revolves around issues of freedom, independence, and responsibility; yet, for the queens and the
cookies, these expectations did not hold true. In junior high, the girls’ actual experiences in the school context were constricted time, movement, and talk. Only through literate underlife were these girls provided any opportunity for more freedom, independence or responsibility (Finders, 1997, 129).

Finders suggests that these constraints placed on both groups of girls made their transition into adolescence emotionally challenging. She argues that a sociocultural pedagogical approach to engaging critically with such texts would open up possibilities for the girls to see alternative roles for themselves beyond consumerism for social queens or alienation for tough cookies. From this perspective, teachers are cautioned that to “…deny our power as educators, we deny our students the opportunity to rewrite cultural and social scripts.”

Expanding Alternative Lifeworlds

In her 1997 book, Writing Superheroes: Contemporary Childhood, Popular Culture, and Classroom Literacy, Dyson studies a classroom in which the teacher allows the children to use popular texts, particularly those involving superheroes to inform their own creative writing. Following Bakhtin’s dialogic theory of language she argues that children’s literacy development can be better supported by allowing them to play out popular narratives collectively.

…I drew on the dialogic vision of language developed by Bakhtin (1981, 1986). In this view learning to use language involves learning to interact with others in particular social situations and, at the same time, learning to be, so to speak, within the dominant ideologies or “truths” about human relationships; that is, it involves learning about the words available in certain situations to a boy or girl, to a person of a particular age, ethnicity, race, class, religion, and so on (Dyson, 1997, 4).
From this perspective, acting out popular narratives enables children not only to experience possibilities related to their own social worlds but allows them to step into the lifeworlds of the diverse characters and cultures represented in those texts. For Dyson, the teacher facilitates literacy events by coordinating access to a mixture of popular, traditional, and multicultural texts. She argues that when schools and educators are “permeable” to the inclusion of diverse narratives, everyone benefits. Along these lines, children develop the possibility of learning about multi-varied and dynamic social futures.

We can play good guys and revel in moral assurity and might that’s right, and we might even play bad guys and enjoy the pleasures of violating all the rules and of might that’s raw. And we can look to cultural heroes (or superheroes) for guidance as we choose our roles. But, alas, our heroes are not always what they seem. Ultimately, we have to look to each other to negotiate the common good (and the common evil) and, in this way, jointly construct our future (Dyson, 1997, 4).

James Gee also emphasizes how play, in the form of video gaming (Gee, 2003) supports particular types of learning and even transfer (see e.g. Gee’s discussion of learning transfer in the Castle Wolfenstein game on pp. 125-127). From this perspective, Gee draws attention not only to the ability to transfer gaming skills across gaming scenarios but the productive aspects of learning via play that contribute to experiencing alternative perspectives and lifeworlds. In these terms, the learning that occurs during play is remarkably productive as well as engaging.

*Literacies Not in the Critical Line*
Up to this point, I have described the critical turn in literacy studies and the recent approaches which take literacy as essentially a multi-dimensional concept (see Table 1 for a summary of literacy frameworks).

Table 1 Summary of Literacy Frameworks

<table>
<thead>
<tr>
<th>Approach</th>
<th>Definition of Literacy</th>
<th>Key Concepts</th>
<th>Critical?</th>
<th>Contexts</th>
<th>Role of Teachers</th>
<th>Digital Divide?</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>New Literacies</strong></td>
<td>Competencies associated with social learning and new technologies</td>
<td>Internet and new ICTs.</td>
<td>Yes</td>
<td>Schools.</td>
<td>Orchestrators of contexts for new literacy practices.</td>
<td>Access and discourse divides.</td>
</tr>
<tr>
<td><strong>Popular Literacies</strong></td>
<td>Culturally-situated practices.</td>
<td>Play, informal literacies.</td>
<td>Yes</td>
<td>Schools, informal learning environments.</td>
<td>Facilitators of access to texts that support learning.</td>
<td>Not a core concern.</td>
</tr>
</tbody>
</table>
Following this line of research, literacies represent sets and practices associated with culturally specific attainment rather than an attribute of being skilled simply in reading and writing. It is important to note, however, that the multi, new, and popular literacies approaches are all part of a critical line. There also exist, however, multi-dimensional (or pluralized) approaches to literacy that are skill-based and concerned simply with competencies rather than critical consciousness. In the section that follows, I derive from the critical grouping a set of principles which I use to inform a Critical Multiliteracies (CritMLs) approach to design.

**Critical Multiliteracies for Informal Learning Design**

As mentioned earlier, the Fifth Dimension has influenced and drawn on recent design experiment approaches to architecting educational interventions and possesses theoretical roots in cultural-historical, socio-cultural, and activity theory. Imbued with a social consciousness, 5D research seeks to mitigate disadvantage by providing dynamic, voluntary contexts for learning. Although the 5D isn’t influenced specifically by the critical multi, new, and popular literacies approaches discussed previously, I feel these approaches have much to offer. Specifically, taken together, these perspectives provide a theoretical rationale for (a) infusing informal learning environments (ILEs) with critical events, (b) creating dynamic and transformative contexts for interactions with new ICTs, and (c) developing engaging activities which support voluntary participation by children in educative practices. In the section that follows, I derive and outline the principles from the critical multi, new, and popular literacies approaches that I find most useful for weaving together a strategic approach
to new ICT instruction for informal learning environments. These principles include: exploring lifeworlds, recognizing sources of power, multimodality, intertextuality, play and popular culture, design and production, and changing roles for adults. Taken together, they form the basis of a Critical Multiliteracies (CritMLs) framework for ICT-infused, informal learning design.

Table 2 CritMLs: Principles for Informal Design

<table>
<thead>
<tr>
<th>Principles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exploring Lifeworlds</td>
</tr>
<tr>
<td>Recognizing Sources of Power</td>
</tr>
<tr>
<td>Multimodality</td>
</tr>
<tr>
<td>Intertextuality</td>
</tr>
<tr>
<td>Play and Popular Culture</td>
</tr>
<tr>
<td>Design and Production</td>
</tr>
<tr>
<td>Changing Roles for Adults</td>
</tr>
</tbody>
</table>

Exploring Lifeworlds

Work by the New London Group (2000) and critical researchers such as Barbara Comber (2002) emphasizes the importance of placing students in learning contexts where they may explore other lifeworlds so that they can function in an increasingly networked and multi-cultural world. Gee (2003) suggests that popular narratives found in video games have the potential to expose students to other ways of
being, possibly increasing their understanding of marginalized groups and historical events.

For informal learning environments with multiple, related sites, (such as the Fifth Dimension), researchers need to think of ways to engage participants in global networks. This may be accomplished via electronic bulletin boards, networked gaming, web design, or video production and exchange. These virtual activities linking students in disparate places serve dual purposes: on one hand, they expose children to diverse cultures and on the other hand, they engage them in activities which require fluency and competency with various technologies.

**Recognizing Sources of Power**

Gee (2000) suggests that privileged students, no less than their less advantaged counterparts, need to be cognizant of sources of power which affect their own opportunities and ability to engage in particular types of language practices. Along similar lines, Dyson (2003) and Finders (1997) argue that while schools should recognize students’ literacy practices involving popular texts, attempts should be made to help students see the discourses of consumerism, sexism, racism, etc., that threaten to limit their own opportunities as well as those of others. For ILEs, where participants have ready access to popular forms, dialogic practices must be encouraged that mitigate and challenge the effects of consumerist and limiting (based on gender, culture, or race) narratives.
Multimodality

Gunter Kress’ writing (Kress, 1999) on multimodality suggests that communication in the information age is inherently a process that involves more than just reading and writing. Students must be fluent in multiple discourses related to verbal and non-verbal communication. In a similar manner, the new literacies approach emphasizes the importance of students gaining competencies not just in reading text but in applying strategies for reading off the screen, understanding images, interpreting colors, and navigating infrastructures for information retrieval (Coiro, 2003; Leu, Kinzer, Coiro, & Cammack, 2004; Sutherland-Smith, 2002).

For the design of ILEs, the emphasis should be on providing activities in which participants are exposed to a variety of resources both electronically and in the “dirt world”. For example, in the Fifth Dimension, participants often play simulation-type videogames such as Zoo Tycoon, SimCity or Age of Empires with the technique of killing animals, shooting characters, or burning structures without engaging with the practices of strategy, husbandry, or critical planning and problem solving that form the goal-oriented framework for the game. To engage in these practices are required understandings of complex iconography, images, and text provided by the game designers. Informal learning environments should create opportunities to encourage engagement with and fluency in these multiple modes of communication.

Intertextuality

As a concept, intertextuality emerged from semiotic theory (Kristeva, 1980) to describe the process by which individuals come to know a particular text through their
prior experiences with other texts. Jay Lemke (1998) uses the concept of intertextuality extensively to drive home the point that literacies are “always social: we learn them by participating in social relationships; their conventional forms evolved historically in particular societies; the meanings we make with them always tie us back in to the fabric of meanings made by others (Lemke, 1998, 2).” The idea that literacy learning is most effective when it is socially situated and part of an intertextual chain of meanings (relevant to students) gives researchers concerned with literacies in ILEs a new way of thinking about the introduction of new practices. For example, popular culture/youth culture narratives might be used to initiate intertextual chains, creating new linkages between popular texts and adult-sanctioned texts, competencies, and ways of viewing the world.

Play and Popular Culture

The importance of play, popular culture, and youth narratives can’t be underestimated. Dyson’s important work integrating popular stories with school-sanctioned narratives demonstrates how children can use their cultural narratives as a base from which to work from as they encounter school-sanctioned texts and diverse lifeworlds. Finders also shows how girls’ private, informal literacy practices have real consequences for their social and emotional development. In each of these cases, the author calls for popular texts to be appropriated by classrooms to support not only skills acquisition but to provide spaces where dialog and critique of popular narratives can play out. Most afterschool ILEs incorporate popular culture to a great extent. I
think the goal achieved by Dyson was the successful meshing of the popular and the adult-sanctioned texts through reading, writing, artwork, and dramatic play.

Design and Production

David Buckingham (Buckingham, 2003) suggests that production presents students with an ideal site to develop new critical competencies because media projects give them a metalanguage to challenge discourses. The New London Group’s take on design as the route by which students engage in meaning-making and social change (1996) also places productive practice at the center of a pedagogy for new ICTs. Informal learning environments, particularly those afterschool sites that enjoy flexibility in programming should use production projects as one approach to introducing children to new practices related to new ICTs.

Changing Roles for Adults

Each of the frameworks I touched on argues that the swift and continuous changes associated with the information age and new economy make visible the diverse and complex nature of literacy, magnifying the inadequacy of any individual performing as a sole locus for knowledge. This distributed nature of knowledge related to new ICTs requires that teachers take on new roles as their students will often know more than they do in certain circumstances. For those working in ILEs, these phenomena have been apparent for many years. As is built into the design of the Fifth Dimension, adults designing interventions should leverage flattened hierarchies associated with activities involving new ICTs to both spread expertise among participants and to expose them to the set of collective, cooperative practices they will
need to successfully navigate the every changing reality of the new communications technologies and infrastructures of information.
CHAPTER III
INTERVENTION DESIGN AND ANALYSIS

The Fifth Dimension Project, begun by Michael Cole, Peg Griffin, and others in 1981, forms a university-community collaboration that places undergraduate students from the fields of Psychology, Communication, and Human Development in an afterschool program where they work as field ethnographers conducting qualitative research while they engage in homework help and educative play activities with K-6 child participants. An experiment in informal learning design, Fifth Dimension research has influenced (as well as drawn on) work informed by the Design Experiment approach initially introduced by Ann Brown (1992). Like Brown and others associated with design experiment research, the project supports new approaches to designing instructional activities while contextualizing interventions within localized practices and contingencies.

Brining together the new literacies work developed by Leu, Kinzer and their extended workgroup, the multiliteracies pedagogical framework articulated by the New London Group, the broadly based popular literacies work from Ann Haas Dyson, David Buckingham (and others), and Kristeva’s (1980) work on “intertextuality,” (describing the mode by which individuals use previously encountered texts to interact and come to know new ones), gave me tools to think about learning design and the content and rationale for technology integration and instruction for informal learning environments. I developed a Critical Multiliteracies approach (CritMLs) to learning design that attempts to use youth cultures (as instantiated in popular games, play
practices, and texts in the Fifth Dimension) as textual gateways to new practices centered around media, information, and computer literacy.

**Intervention Design: CritMLs and Boundary Crossing**

A CritMLs approach provides a rationale and theory of how literacy and learning should be conceptualized in the age of information. Discussion in this literature addresses the types of activities and interactions that should be designed such that children might engage in and gain expertise in new literacies. When I turned attention toward designing my own interventions, I remained uncertain regarding the specifics of what how I might assess the usefulness and relevance of designs infused with these approaches. Could I assess learning outcomes? How? Certainly not via double-blind, large scale experimental implementations. The evaluation of learning outcomes in contexts driven by informal, voluntary, and oftentimes transient participation represents a primary challenge to researchers, educators, and librarians. After infusing their libraries, afterschool programs, and classrooms with rich informal learning designs, attention must turn to both understanding and demonstrating the relevance of programming to the goals of a great variety of stakeholders from local and regional policy-makers, community planners, and host institutions, to university administrators and granting agencies.

I suggest that theories of boundary crossing and boundary objects provide a powerful way of overcoming the obstacles of assessment in informal learning environments by giving researchers a way of describing the uptake of new practices among child participants. Questions can be answered about whether an activity design
was relevant as a tool to support learning by framing the issue in terms of whether participants were engaged to the extent that they tried something new or stretched their existing repertoires of literacy. In the sections that follow, I highlight research using boundary crossing and boundary objects as lenses to understand expertise and learning of new skills. I then branch out and consider related work that has gone further to articulate and incorporate the concepts of “recognition perspective” and “third spaces” within the context of designing interventions for learning environments. Finally, I expand on ideas I discussed earlier concerning the rationale for engaging in learning design – that we create contexts where children are able to acquire the competencies needed for engagement in practices that will expand their potentiality for particular types of social action.

Boundary Objects and Crossing

Keeping these issues in mind, and in order to gain perspectives on the way participants interacted with the artifacts and organization of activities, I turned my attention toward work developed by first by Susan Leigh Star (Star, 1989; Star & Griesemer, 1989) and further developed by Yrjo Engeström (Engeström Y. & Kakkainen M, 1995) Terttu Tuomi-Gröhn (Tuomi-Gröhn & Engeström, 2003), Richard Edwards (Edwards, 2005) and others. This line of research describes the processes of boundary crossing in which an individual moves beyond their primary sets of professional practices and realms of expertise. Along similar lines, the concept of boundary objects has helped to articulate the ways in which tools and artifacts
support and provide infrastructures for such “crossings over” between different communities of practice.

Boundary objects are those objects that both inhabit several communities of practice and satisfy the informational requirements of each of them. Boundary objects are thus both plastic enough to adapt to local needs and constraints of the several parties employing them, yet robust enough to maintain a common identity across sites. (Bowker & Star, 2000)

Following Star and Bowker, I conceive of the Fifth Dimension’s activities oftentimes playing the role of boundary object for the disparate communities of practices represented by child participants, community members, researchers and service learning students. By creating a text where play and particularized/formalized content are co-constituted, taskcards present for service learning students and adult researchers an object of analysis and intervention to support and initiate changes in participation on behalf of child participants who, in turn, engage in new practices.

*What Boundaries? Mapping Expertise in the Fifth Dimension*

If the study holds boundary crossing up as a lens to understand and evaluate child participants’ interactions with learning designs, it makes sense to explicitly describe the existing communities of expertise in the Fifth Dimension and the types of boundary crossing that would inform the processes of creating new activities. Boundary crossing is defined as occurring when individuals break away from their established communities and realms of expertise and move toward taking up new repertoires of practice. Where do those realms of expertise begin and end? What do the different communities have to offer each other?
The Fifth Dimension has always been populated by a diverse set of groups with a varying array of expertise in the realms of basic literacies, ICT literacies, creative practices, and popular cultures. Community-based workers, university researchers, undergraduate students, and children represent the most common groups interacting with each other. Broadly speaking, university researchers generally came to the research sites with the type of advanced expertise in basic literacies that one attains through extended years of formal schooling. Along similar lines, undergraduates had experienced many years of basic literacy instruction. Both the researcher and student groups had varying levels of competency with ICT literacies and knowledge of youth cultures. Community-based workers and volunteers also had wide ranging levels of competency with youth cultures, ICT and basic literacies. Although the children themselves had diverse sets of expertise, they all seemed to have deep knowledge of popular culture, particularly those narratives, texts, and toys geared toward youth. Proficiency in multiple languages was common among all the groups.

The goal of the study as a design project was to work with the various adult groups to pool what was known about youth cultures and find connections between these competencies and ICT literacies. I wanted to design activities mediated by specially designed artifacts and guided by adult brokers to support boundary crossing by the children toward critical multiliteracies. I discuss these processes of brokering and the design in the sections that follow.
**Brokered Participation in Communities of Practice**

Etienne Wenger (1998) suggests that boundary crossing between communities of practice is oftentimes mediated by brokers. For Wenger, brokers are individuals that have expertise and relationships located in multiple communities of practice and are willing to extend practices found in one community toward individuals relegated to a different sphere of expertise and participation.

The job of brokering is complex. It involves processes of translation, coordination, and alignment between perspectives. It requires enough legitimacy to influence the development of a practice, mobilize attention, and address conflicting interests. It also requires the ability to link practices by facilitating transactions between them, and to cause learning by introducing into a practice elements of another. Toward this end, brokering provides a participative connection – not because reification is not involved, but because what brokers press into service to connect practices is their experience of multimembership and the possibilities for negotiation inherent in participation. (Wenger, 1998, 109)

This idea of brokering was important for me because it captures the type of goal-oriented activity that we want our undergraduates, researchers, and community workers to engage in. I wanted to create a hybrid space, via learning design, where youth literacies and popular texts can support learning and development. Brokered interactions to support boundary crossing were designed as part of the programming to involve children in web design and digital storytelling. These brokers also drove the implementation of intertextual taskcard designs.

**Third Spaces and a Recognition Perspective**

Kris Gutierrez’ Las Redes afterschool site evokes this idea of hybridity in the development of “third spaces” as a concept to express the design of heteroglossic
classrooms that are productive contexts for their students and teachers. For Gutierrez, a third space (Gutierrez, Rymes, & Larson, 1995) emerges when official and unofficial language, scripts, and space inhabit the educational context (see Figure 5).

Figure 5 Gutierrez' Third Space (Tejeda, 2003)

The idea of learning environments being permeable to youth cultures and expertise is essential to designing for boundary crossing. Design built upon participants’ funds of knowledge must rest on the idea, however, that these local, informal, and generational ways of knowing have something of value to offer. Olga Vasquez (2003, 50) describes a “recognition perspective” as a “vantage point [which] prompts us to ask what a child can do rather than what he or she cannot do. Subsequently, it leads us to
account for the range of resources these children bring to the learning setting and helps us build them into new social conditions.”

Revisiting Intertextuality: Intertextual Taskcard Designs

As mentioned previously, the Fifth Dimension is structured such that children’s activities are guided through joint activity with undergraduate buddies and peers as they work through sets of activities using taskcards. Taskcards, authored variously by undergraduates, graduate research assistants, and researchers from other 5D sites, take participants through a series of tasks which are responsive to children’s goals for play in particular games but incorporate educative aspects. The instructive aspects of a taskcard may touch on basic literacies such as reading, writing, and math, or introduce new practices related to video production, dramatic storytelling, artwork, and, the focus of this paper, web design. Integral to taskcard design is not only the merging of play with educative practices but the dimension of levels of expertise that participants must also navigate.

The idea that literacy learning is most effective when it is socially situated and part of an intertextual chain of meanings (relevant to students) gives researchers concerned with literacies in ILEs a new way of thinking about the introduction of new practices. By introducing intertextuality as a design element to existing methods of designing taskcards, I felt I could use popular culture/youth culture narratives to initiate intertextual chains, creating new linkages between popular texts and adult-sanctioned texts, competencies, and ways of viewing the world.
I introduced my first intertextual activity design as shown below at the Fair Hills Boys and Girls Club Fifth Dimension. Organized around a common taskcard format with beginner, good, and expert levels of expertise, the activities take participants through increasingly complex tasks grounded in children’s participation in a popular pc-based video game, “Zoo Tycoon”. The “Zoo Tycoon Activity Page” represents a second Zoo Tycoon taskcard for children to choose from, thus providing another set of activities related to the popular game. At the beginner level, the child extends the context of the game toward the goal of finding tips and hints on the web and testing their viability in the game. At the good level, the child tests and saves their tips and hints into an electronic file. Finally, at the expert level, the participant inserts this file into a personal webpage.

Figure 6 Intertextual Taskcard: "Zoo Tycoon Activity Page"
In the fieldnote that follows, an undergraduate describes an interaction that was guided by the taskcard describe above. I designed this intertextual taskcard to support the child’s movement beyond participation in a favorite video game to practices related to searching the web, reading text on a computer screen, and the critical application of information found through the search process.

I asked Calvin if he knew what a search engine was. He said that he didn't, and I explained that it was a website you go to in order to search for things. I showed him how the search results were of websites based on the subject he typed in. We went to several of the links in order to find one that had some tips on it. We found one, and I asked Calvin if he knew how to copy and paste selections. He said he didn't, and I instructed him on how to do so. I told him to highlight what he wanted to copy, and he did so... Calvin found another one on a website and became excited, turning to Raymond sitting to his left and explaining the code to him with a jazzed tone of voice. Calvin copied and pasted the new codes into the Notepad document, then we spent some time reading the next directions on the task card [NED: 11/9/04]

In the example above, the undergraduate was able to extend one child’s agenda for playing a video game toward more educative practices. Movement from a context bound by the game itself to one where the child became engaged with new practices (related to working with virtual objects, searching the web, and applying relevant information to a set of problems) was accomplished through processes of “intertextual chaining”. Intertextual taskcard design was first introduced at the Fair Hills Boys and Girls Club Fifth Dimension but later implemented as part of a comprehensive set of activity designs.
The Centrality of Social Action

When considering the theoretical frameworks and lenses through which I’ve decided to approach the design of contexts for information and communication technologies (ICT) integration and new literacies instruction for informal learning environments, it’s important to keep in mind a core assumption about boundary crossing and why it is important to this study and the mitigation of disadvantage in general. The assumption to which I refer underlies the relationship between boundary crossing and the potential for individuals to act out in the world. This potentiality for social action provides a rationale and a goal for our participants. Elizabeth Birr Moje phrases this in a slightly different way emphasizing our responsibility to youth to help them develop into functioning adults. It’s reasonable to think that the life choices that proficiency across ICT-infused practices and contexts provides fits in with this call by Moje.

Drawing from this analysis, I contend that literacy theorists need to pay more attention to youth and to the youth studies conducted in disciplines outside the literacy education field, in part to support youth in constructing successful and happy adult lives. Furthermore, if literacy theorists turn our attention to youth and study how they learn the increasingly complex literacy practices required in disciplinary discourse communities, how they reinvent literacies for unique contexts, and how they use literacy as a tool to navigate complex technologies and fragmented social worlds, then we might learn more about literacy learning among children and adults. (Moje, 2002, 99)

It is this concern with leveraging youth cultures to extend potentialities for social action (via boundary crossing) that represents the core rationale of the study. The route towards achieving this fundamental goal was theoretically guided by a critical
multiliteracies framework, resulting in hybrid learning designs and artifacts for implementation in an existing informal learning environment, the Fifth Dimension. See Figure 7 for a summary of design principles for the dissertation.

Data Collection at Fair Hills and Polvera Boys and Girls Club

In the sections that follow I outline the types of data I collected and analyze to support my argument that youth cultures and literacies can in fact be incorporated into broker-mediated learning activities such that children will successfully cross
boundaries toward new sets of expertise. I present several case studies which rely on ethnographic observations, child questionnaires, and examples of designworks to communicate these ideas. The overall research design allowed for triangulation between data collected from observations of children inscribed in fieldnotes, statements children made about themselves (in applications and interviews), and designworks created by children as part of their participation in various projects. The resulting analyses support arguments addressing youth boundary crossing and contingencies shaping and constraining movement across contexts and practices.

*Ethnographic Observations*

Adult, undergraduate participants recorded much of the activity as it enfolded in ethnographic fieldnotes. Undergraduates (numbered between 15 and 20) attended the Fifth Dimension 2 times a week and authored fieldnotes detailing their participation and interactions. Educative play activities taking place at the sites included participation in: (a) console and pc-based video gaming, (b) art projects, (c) board games, (d) multimedia production projects, (e) web-based information seeking and (e) web design. Hundreds of fieldnotes were collected during these 2 and a half years. I performed coding and analyses allowing me to chart and characterize participation in various activities through observations made by adult, undergraduate participants in the Fifth Dimension.

*Child Questionnaires and Interviews*

Prior to participation in the Fifth Dimension sites, children completed an application in which they provided biographical information (e.g. name, age, gender,
favorite movies/activities). This application performed an instructional function in that it organized a set of tasks for children to complete with their undergraduate buddy which introduced them to activities related to searching the web, digital photography, manipulating a computer, geography, etc. Children were interviewed periodically concerning their web design and video production projects. The digital audio recordings of these interviews provided data which further informed my understanding of how social transformations were articulated through participation in activities integrating technology, information seeking and multimedia production.

*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 production projects. Content from children’s floppy disks was uploaded to folders on a server at the end of each week during the 10 week fall quarter. 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 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 use successfully to pursue his agenda within a particular computer game. In later weeks, the child transferred this list to an electronic document and finally to a personal web page. The approach of observing each child’s evolving collection of electronic artifacts grounded my analyses of their participation and changing interests in social relations with their peers and the 5D idio-culture. For instance, it was possible to support fieldnote observations suggesting that 1 or 2 boys were responsible for introducing particular themes and new strategies for building websites since the relevant products of these innovations appeared on their personal disks first.
CHAPTER IV

YOUTH WEB DESIGN: FAIR HILLS BOYS AND GIRLS CLUB

The following 3 chapters address, in depth, practices related to new ICT literacies as they were adopted among children participating in the Fifth Dimension from fall 2003 to spring 2004. I use the several case and group studies from field sites locate at the Fair Hills and Polvera Boys and Girls Clubs to capture for the reader the my attempts at creating contexts where children might engage in boundary crossing from their own practice-bases, infused with popular and play-oriented forms of expertise, to domains of expertise associated with Critical Multiliteracies – those literacies that might expand their potential for social action across their life trajectory.

When the site at Horizon Elementary School had to close, I returned to the Fifth Dimension site at the Fair Hills Boys and Girls Club. During the fall 2004, winter and spring 2005 quarters, I developed (in conjunction with colleagues from the Laboratory of Comparative Human Cognition) sets of brokered activities and intertextual taskcards to support participation in digital photography, personal web design, and digital storytelling projects. We wanted to support boundary crossing by children from using the sets of expertise they bring to the various afterschool sites as gateways to learning new practices. To begin, I designed a short instructional activity that the children would complete prior to participation in the Fifth Dimension at the Fair Hills Boys and Girls Club. I tried to ground the questions in youth culture to make participation more fun. Undergraduate students took notes on each child’s navigation through the “application” making observations regarding their knowledge
of key terms related to new information and communication technologies and ability to type, search the web, engage in networked discourse (e.g., use of online bulletin boards) take digital photographs, and manipulate files. The activity was meant both to introduce new skills and to assess the competencies of participants. Information was also gleaned from these “applications” in the form of survey questions in which the child gave information about their favorite games, activities, and movies. These data rounded out observations from fieldnotes, photographs of activity, and the artifacts for children’s projects.

As I mentioned previously, it was during the 2004-2005 year at the Fair Hills Boys and Girls Club, that I began designing activities using the new critical multiliteracies approach I had been developing. I also began giving the children their own floppy disks to save their games-in-progress, art, digital photos, and favorite links and pictures gleaned from their web searches. My designs responded to 2 key challenges in the Fifth Dimension. First, children in the 5D would oftentimes find a game in the maze that they liked to play and continue playing it either ignoring the goals set out by the taskcard or by completing the goals and never switching to a new activity. Second there was an uneven distribution of participation in the Fifth Dimension such that the girls engaged in activities having to do with technology to a much lesser extent than boys. In addressing the first problem, I wanted to design new taskcards that would be engaging and use the most attractive characteristics of the most popular games to create contexts where children would voluntarily cross boundaries from play practices toward those literacies that will help them later on. To
do this, I had to identify the most popular games and activities in the Fifth Dimension. By far, the most popular game at the time was Zoo Tycoon (for boys and some girls).

There was a high level of engagement with the taskcard originally designed for this “pc game” and several boys learned how to search for codes on the web, save them to a disk, and apply those codes in the games. One boy learned how to build a website showcasing the file he created so save his codes. It is important to note that in both the Xbox and Zoo Tycoon cases, I predicted that by using the intertextual relationships between the games, the online websites, and the printed strategy guides as gateways to new practices, adults might get children voluntarily to gain competencies related to inquiry, reading and writing, and the production of electronic personal narratives. After these two cases, there seemed to be hope for this contention (at least for boys).

In addition to the taskcard in Figure 6, which integrates web design into an extended gaming context, another existing taskcard was brought to the forefront where the fundamental activity is to design a personal webpage. As part of introducing web development in the Fifth Dimension (5D) children were also 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 5D folder. Although some children never complete taskcards, the vast majority of participants are motivated to engage in activities organized by taskcards because their achievement of
higher levels of expertise grants them access to a wider variety of games and more popular activities.

The research design introduced web-building practices to the children of the 5D and followed their production of personal webpages. By structuring the intervention this way, I was able to observe the webpage as artifact, the child-author, and inter-child influences simultaneously. Rather than simply analyzing the products of the children’s “online” practices conveyed through personal webpages, I present evidence compiled by observing and knowing the authors through their actions in the “dirt world”. Along these lines, the study accomplishes what most research surrounding the development of virtual narratives doesn’t describe: the unique and particular social contexts from which personal webpages emerge and develop over time.

*Why Web Design? What literacies?*

Personal web design was chosen as an activity in hopes that the children would extend their repertoires of practice toward learning the technical and narrative literacies needed for building electronic narratives. I 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. The Fifth Dimension provided an attractive environment to study these issues because the setting provided children with access to computers, the internet, web authoring software, and a group of undergraduate participants to help out. Nine boys participated in webpage design during the fall of 2004. In the section that
follows, I give a brief description of each child and his role in the 5D. I discuss design leaders and wizard’s assistants (WAs – children who had earned distinction through the completion of a significant number of 5D activities) at the beginning to make explicit their influence over the younger, less experienced children’s web development practices. For a summary of the children names and ages, see Table 3. To see a summary of the content of each child’s page, see Table 4.

Table 3 Summary of Biographical Information

<table>
<thead>
<tr>
<th>Name</th>
<th>Application Date</th>
<th>Age</th>
<th>Favorite Website</th>
<th>Favorite Movie or Show</th>
<th>What makes you a special person?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bran</td>
<td>12/16/04</td>
<td>10</td>
<td>Google.com</td>
<td>Mission Impossible</td>
<td>“I have lots of experience with computers.”</td>
</tr>
<tr>
<td>Manny</td>
<td>10/5/04</td>
<td>8</td>
<td>Scooby-Doo</td>
<td>The Texas Chainsaw Massacre</td>
<td>“I am good at math”</td>
</tr>
<tr>
<td>Marret</td>
<td>9/29/04</td>
<td>11</td>
<td>Personal Webpage</td>
<td>League of Extraordinary Gentlemen</td>
<td>“I’m very nice.”</td>
</tr>
<tr>
<td>Alfred</td>
<td>9/29/04</td>
<td>9</td>
<td>Yahoo.com</td>
<td>Lord of the Rings</td>
<td>Did not answer.</td>
</tr>
<tr>
<td>Phil</td>
<td>10/6/04</td>
<td>6</td>
<td>Neopets.com</td>
<td>Harry Potter</td>
<td>“I play chess.”</td>
</tr>
<tr>
<td>Carland</td>
<td>10/5/04</td>
<td>9</td>
<td>Funny Junk.com</td>
<td>Freddy vs. Jason</td>
<td>“Running-fast”</td>
</tr>
<tr>
<td>Dill</td>
<td>Did not fill out an application.</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>Drew</td>
<td>9/29/04</td>
<td>9</td>
<td>Funny Website</td>
<td>Mean Girls</td>
<td>“Athletic”</td>
</tr>
<tr>
<td>Skyler</td>
<td>12/13/04</td>
<td>10</td>
<td>Addicting Games.com</td>
<td>National Treasure, Polar Express</td>
<td>“I have red hair.”</td>
</tr>
</tbody>
</table>
Table 4 Summary of Methods and Designs in Youth Personal Webpages

<table>
<thead>
<tr>
<th>Name</th>
<th># of Pages</th>
<th>Bricolage</th>
<th>Links</th>
<th>Writing or Text</th>
<th>Sports</th>
<th>Car or Cycle Culture</th>
<th>Action or Adventure Narratives</th>
<th>Gaming</th>
<th>Humor or Parody</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alfred</td>
<td>1</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Bran</td>
<td>4</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Carland</td>
<td>1</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Dill</td>
<td>1</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Drew</td>
<td>5</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Manny</td>
<td>1</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Marret</td>
<td>5</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Phil</td>
<td>1</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Skyler</td>
<td>2</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

Summary of Cases

Marret was the oldest child (11 years old) producing webpages in the Fifth Dimension. I have observed him since 2001 when I first arrived at UCSD. He was an early adopter of technology and media production practices and I first posted his webpage to 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.

While he was playing John walked up to him and asked him how his paragraph was coming. I said to him, "You didn't tell me that you had to write a paragraph." Marret just continued with what he was doing... Later I was talking to John about Marret and his proficiency with computers compared to his proficiency with reading and writing. Marret is behind in his reading and writing for his age. This is why
John asked him to write a paragraph. Both Zoey and Marret have been held back a grade (TB, Fieldnote: October 18, 2004).

That he struggled with reading and had been held back a grade has in no way limited the role Marret plays as a wizard’s assistant. 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.

…we both have been noticing Marret’s behavior- he is often questioning why the kids did something they shouldn’t have on a game or commenting how easy a level that a kid is working on. Marret seems to be admired by many of the younger kids because he has played all the games and already knows how to beat them. [KW: 5/18/2004]

Later I discuss in greater detail Marret’s development of personal webpages and the way in which they served to set an example and agenda for children new to these sets of production practices.

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 didn’t attend the 5D as often and hadn’t been part of the 5D for as long a period of time. Bran enjoyed greater success in school than Marret.

It was Bran that impressed me beyond belief when he started explaining Marret's computer game to Miguel. He told him how the game worked, that you could pick between Roman and Greek gods and mythical creatures to fight with you. He then stated that he liked the game "because I really find that whole subject quite fascinating". My jaw must have dropped when he said that and Miguel continued talking to him about the subject. I told Bran that I was thoroughly impressed. When I asked them what kind of music they liked Marret interrupted his concentration long enough to say "he likes Latin". Latin? "Wow, that’s awesome", I said, and asked him how he got into that. He likes los lonely boys who I never would have heard of before except that my
mom was just telling me how she wanted to go see them. Bran had the same taste in music as my mom. [OS: 10/7/04]

Bran’s interest in more adult topics was evident in his use of a political parody of George 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 (10 years old) visits the 5D with his sister Melissa. Like Marret and Bran, he was a wizard’s assistant (WA). Although Skyler already played games reserved for WAs, he still enjoyed completing taskcards with the help of undergraduate buddies. Skyler came to build a webpage via completion of the Zoo Tycoon taskcard.

We were looking for a computer when Maria asked Skyler if he wanted to build a webpage. Skyler agreed so Maria and I went to look for the task card for Microsoft Front Page. We went on the web and looked for an image of Zoo Tycoon. Skyler picked one and I showed him how to save it onto the hard drive. Just then Maria came over and suggested we save it onto the disk. The picture Skyler had chosen was too small and it was replicated all over his background page. He didn't like it so we were going to open it up in paint and see if we could make it bigger but when we opened up his disk, Maria saw that he had an old picture of the Lord of the Rings and he opted for that one instead. He made the picture bigger in Paint and then opened it up in Front Page, as a background. By this time Skyler knew how to open it up in a background on his own. Then we went to Word Art under Insert on the menu and he picked the design and the title of his page: Lord of the Rings. 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 front page 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. Then we changed the color of the table to make it match the title he gave it. He once again used Word Art and typed Zoo Tycoon above the Cheat Codes Table. I suggested that he include a hyperlink on the page to the Zoo Tycoon website. So we
searched the menu to find out how to do it until we finally found it. Then we went to Google again to look for the website. Once we found it I showed Skyler how to copy and paste. We pasted the URL into the hyperlink window and there it was on the screen. Then I suggested he change the color of the Hyperlink to match the rest of the page. So he highlighted it and changed it to red [LT: 11/4/04].

Skyler’s way 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. Skyler’s experience also demonstrates both the expertise required among 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 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 (9 years old) didn’t fulfill the requirements to become a wizard’s assistant during the fall of 2004 but he was motivated to do so. Part of the 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. This isn’t to say that Drew didn’t jump wholeheartedly into designing his personal webpage – he was 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.

He wanted to search for other things, and I didn’t want to say no because he kept asking if I wanted to see something. He searched for “funny cats” and showed me all these pictures of funny cats’ pictures. He wanted to put some on his website, which he was making. He choose three funny cat pictures, his favorite was a picture where there was a cat sleeping and had some Budweiser beer can next to it. Another picture was a cat holding their front arms up while having a gun
pointed to them. The last one was two cats in fighting positions, and was supposed to be made to look like a fight scene in the Matrix. Drew kept laughing at the pictures of the funny cats. [AT: 9/29/04]

Drew’s website incorporated the images mentioned in AT’s fieldnote into his webpage. In addition to these images of animal parody, Drew highlighted his other interests in gaming.

I asked him what he was doing, and he said he was going to work on his website. I asked who had had a web page and he listed to me the names of a few kids. He logged onto the internet and through the BGC site, was connected to his site which is called, Drew and Buck’s Web Page. I thought it was awesome that he created his own page, I was impressed. He had all sorts of pictures of random things and I asked where he got them, and he told me just form different places on the internet He had some links on his page, and I asked him what the links were for and he clicked on one that went to the Lego site. He told me that it has all sorts of games, and scrolled down and said, “Look at all the games I have.” 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 doesn’t involve endangering participants or incorporating/producing offensive materials.
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. The next time you work with him, try encouraging him to do homework with you. He struggles in school and maybe now he'll be open to some help. [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 in his application form that what makes him special is his athletic ability.

Manny (9 years old) was a longtime participant in the Fifth Dimension. In fact he was one of the children at Horizon that played Xbox games. 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.

I was especially interested in Manny's eagerness to use the digital camera, and his brother, Jack’s love for the video camera... At one point, when Manny was watching Nary and another student (Phil) upload photos, he even remarked to me how he had already learned how to do this process yesterday and how doing it with me earlier was cementing it in his mind. His attention span with the camera was remarkable, because he remained so focused on watching Phil perform this task and was even coaching him over his shoulder. When I asked him if it was a review for him, he nodded, and with a smile signified how confident he was with the digital camera. The fact that Manny
enjoyed watching another student do the same process he had just
learned really revealed his dedication to learning about using the
camera and his patience to focus on acquiring efficiency with this task.
[BW: 10/07/04]

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 archive records from his disk demonstrate that he collected related
pictures but when the club closed for remodeling, he had only completed the one page.

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 became very good at taking pictures. He learned to take them
from different angles and how to zoom and he learned a little about
lighting. Overall he was very motivated to learn and he and I both felt
that he had gotten a lot accomplished. Site was fun today. I felt like I
connected with Alfred on a new level. Today I found out that Alfred
had Asperger’s and that that was why he acted up or was different from
most of the children. I wanted to incorporate him into the club (even
though he kinda already is) and make him feel special and that he can
do everything that the other kids can do and that he too can have lots of
friends. He was so happy to work with me and the computer and the
camera that I was touched. [BW: 11/4/04]

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 didn’t stop him from playing computer games most of which didn’t 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.

He kept checking out the other boys' games and then showing off his work to them. Bran was very nice and always told him how cool his city was looking. Phil seemed very smart but very distracted. He didn't really want to listen to my advice on how to build a city properly if it meant putting any thought into it. He didn't want to be slowed down. But, when I would say things like "ooo don't forget to put one of
these" or "hey click on that one and see what happens" then his enthusiasm would stay high and he wouldn't lose acceleration in making his city. I thought it was funny that John warned me that he had a speech impediment because even after being told that he did, I didn't notice it at all. Phil was so sweet and fun and he made me realize that in order to get a point across in teaching or assisting, it has to be entertaining. [OS: 10/14/04]

Later in the chapter, I detail how, after talking with Marret, Phil was inspired to build his own website (see Figure 9). 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.

![Figure 9 Screenshot: Phil's personal webpage.](image)

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 (see figure 10). I include him and
his project in the study because I remember how the boys gathered around him and watched him build his site – early enough in the year to undoubtedly contribute to group knowledge and practices.

![Figure 10 Screenshot: Dill's personal webpage.](image)

Dill combined the images he found on the web with descriptions he thought of (see Figure 10). He included a link to a favorite magazine. Unfortunately Dill never returned after that one visit to the site.

*Children’s Design logic*

In the previous sections, I tried to give a generalized account of the Fifth Dimension and the children’s web design experiences. Now I turn my attention
toward discussing the strategies I observed children in the Fifth Dimension employ as they developed personal webpages. I suggest first that bricolage, the practice of appropriating materials and re-packaging them into new representations, characterizes an important facet of youth web design in the 5D. Second, I tie strategies of bricolage to the imperative of youth information seeking practices which support the collection of digital artifacts. Next, I chart the role of collective computing and sharing of tools and design practices as an additional strategy the boys used to create their sites. Finally, I address the social and technological contingencies shaping and constraining participation by our youth web-builders.

Bricolage

Chandler & Roberts-Young use Claude Levi-Strauss’ notion of “bricolage” (Lévi-Strauss, 1974) to characterize the methods by which children build aspects of their lives and identities into personal webpages.

Homepages are ‘assembled’ rather than simply ‘written’. Claude Lévi-Strauss spoke of a ‘dialogue with the materials and means of execution’ (Lévi-Strauss, 1974, 29). His notion of 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).

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 studying the articulation of community and identity in the design of personal webpages (Chandler & Roberts-Young, 1998; Warschauer, in press).

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, these practices aren’t rampant among adults. The highest incidence of “copying images as they see fit” occurred in 40% of web authors associated with an educational community. By contrast, in my study, 8 of the 9 participants integrated images obtained by copy and pasting from other web sources.

*Information Seeking*

The mode by which the children located images for inclusion in their websites was via web-based information seeking. Information seeking among youth is a topic not well addressed outside of the library & information science field. The existing research that does exist centers mostly around information seeking that occurs in school settings (mostly library media centers) where children are instructed to fulfill some academic project or assignment (see e.g. Kuhlthau, 1993/2004; Shenton &
Dixon, 2004). The goal of such research has been to understand whether an intervention designed to teach students how to use library resources is successful or where and how students encounter difficulty when interacting with library resources. In terms of informal information seeking, there is some work suggesting that adolescents and teenagers engage in particular types of information seeking in the home (Bates, 2004; for more discussion of the issue see Dresang, 1999). Observations in this study highlight the existence of informal information seeking by youth in the Fifth Dimension.

This reliance both on using images as the most prominent mode of representation, as well as obtaining materials from other sources, suggests two things. First, the children in the Fifth Dimension generally resisted writing activities.

…the skill level that the children perform at in relation to the computer games is impressive, after today I am really impressed with the skill that some of the kids have developed for a particular 5D game, and how much time it really takes to develop that kind of skill. Another general observation that really was confirmed today, is that many of the children can reach the expert levels of tasks, but don't complete it because they don't want to write the letter. [SD: 11/15/04]

This resistance to writing has been observed in other fieldnotes. 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 rely on continued help or memorize the function required to achieve the desired effect.
While working with Phil, I would often forget that he couldn’t read because he knew how to manage the computer without reading. He knew where to click for the games by looking for the box and clicking on that. It amazes me how the kids adapt so well with the computers even though they don’t know how to read any of the letters. It also looks to me as though the computer could be a motivation for them to learn some of the words, like how to type neopet so they don’t always have to ask for an adult to help. [KW: 5/18/04]

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.

…he talked about how kids work on their own webpages through the use of Microsoft FrontPage. He mentioned that Marret has his own webpage and that it would be embarrassing for us not to know how to make a webpage. [DL: 4/6/04]

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 pretty 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.

Marret and Phil were talking and Phil was asking him how he made the web page. When I heard this, I got excited because one of the groups from last week did a web page. Marret had given up on his web page and they went off playing. I went in search for the task card on web pages and when I found it I asked Phil if he wanted to try to make his own and he did. [KW: 4/14/04]

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’s 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 (see Figures 11 & 12).
From the archives in which I saved the contents from each child’s disk, I know that Marret was the first to use these images (2 weeks prior to Drew). This outcome is
in agreement with my suggestion that representational mobility generally travels from more skilled to less skilled boys: Marret was two years older and had been developing personal websites for 2 years. An important aspect of this example is the notion that 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 13).

Even though I was kind of excited to move the game cursor around on my own it was fun to watch and listen to Marret show me and Liz around the beginners level of the game. Age of Mythology is a very popular game. There were always one or two other kids wandering up and hanging on to the back of our sets watching. [TB: 10/6/04]

Figure 13 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 participate in an activity by watching another child. Although the watchers may have never completed a taskcard, such practices of collective computing contributed 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:

I saw Phil sitting along trying to figure out SimCity so I went over and joined him. I grabbed his folder for him and then sat down with him slowly guiding him through the setup of the game. There wasn't a task card for it so we didn't really go by any structure and when there was anything that I couldn't answer for him the Wizard Assistants were a big help (they were also playing the same game- Bran and Marret)… Bran gave us a cheat code so Phil could build his city however he wanted without having to worry about expenses. [OS: 10/14/04]

Collective gaming and computing scenarios supported social practices where older more skilled children introduced tools and practices to younger participants. These findings are in agreement with Jane Goodall’s research with primates as cited by Michael Cole in his 1996 book Cultural Psychology: A Once and Future Discipline?

Goodall (1986), for example, argues for the existence of cultural traditions on the basis of observations of stable differences among different troops in the way that they fish out termites or use leaves to get water. By her account, “young chimpanzees learn the tool-using patterns of the community during infancy, through a mixture of social facilitation, observation, imitation, and practice – with a good deal of trial and error thrown in (p. 561)” (Cole, 1996, 155).
The 5D example discussed above demonstrates how the younger child, in this case Phil, struggled to do an action via trial and error. He finally achieved success through the social facilitation he received from the older boy, Bran. It’s not surprising, then, that cultural traditions in the Fifth Dimension (in this 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 my wider introduction of web design practices in the 5D, it contains a link to CheatWorld.com (see Figure 14).

Figure 14 Screenshot: One iteration of Marret’s personal webpage (prior to fall 2004).

Given the existing practices of collective computing and gaming experiences, that web production activities tended to get done “collectively” seems a natural progression.
It’s 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.

**Doing Membership: Youth Cultures**

In the previous section, it was argued that practices of bricolage, information seeking, and representational sharing represented the “how” of boys’ web design in the Fifth Dimension. This section attempts to come to terms with the “what” of the resulting production. For example, I focus on relevant genres of representation employed by the youth participants that make explicit the boys’ negotiation with popular narratives, sports, video gaming, as well as humor and parody.

With these issues in mind, I address two organizing themes which the boys used to populate their personal webpages: (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.

Although the boys rely 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 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 “push” to viewers.

**Gaming**

The prominent role computer gaming plays 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 (see Figure 15).

**CHEAT SITES**

so you a cheat well...

HERE IS YOUR CHEATS!!!!!!

http://www.cheatplanet.com/
http://www.supercheats.com/
http://www.cheatcc.com/
http://www.cheprecheats.com/
http://www.chepre.ai/
www.cheatworld.com
http://cheats.gameplay.com/
http://01mem.com/
http://www.cheatuser.com/
http://www.cheats.eu/

Figure 15 Screenshot: Marret's gaming site linking to cheats.
Youth Action/Adventure Narratives

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. In the fieldnote below the undergraduate describes the process of one child using his interest in a movie as a jumping off point to start a webpage (see Figure 16).

“…we went to Word Art under Insert on the menu and he picked the design and the title of his page: Lord of the Rings (LOTR). 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 front page and inserted them onto his first page. [LT: 11/4/04]”

Thus, the undergraduate helped this child to collect relevant images for his personal page. In addition to LOTR, Star Wars was an extremely popular narrative with the boys. Images taken from the web relating to George Lucas’ classic series of films and the related video games were found in three of the websites (see Figures 8 and 9 for two examples).
Sports

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.

Cars and Cycling

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 wasn’t immediately clear what role humor and parody
played in the personal webpages beyond perpetuating group cohesion through laughter. The prevalence of the comedic genre in the websites warranted further examination. I take up this issue in the next section.

Meaning-Making, 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 includes particular pictures (see Figure 17) 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.

UCSD buddy: What about the next one? What’s the next picture?
Child: Um, dogs smoking and drinking and playing chess.

UCSD buddy: What… why did you pick that picture?

Child: Because dogs and black people always call each other dog and there’s a cop behind them. (Interview with Manny, December 2004)
Figure 17 Screenshot: Pictures from Manny's personal webpage (original background was black).
 Meaning Making

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 particularly. Beyond supporting a collective laugh for all involved, I suggest that the images allowed the children to articulate understandings of the world (in this case, ethnic difference) and linguistic meaning (e.g. what is real, what is absurd or ridiculous; see Figure 18) through humor and stereotype.

Figure 18 Screenshot: Jokes in Drew's personal webpage.
Such understandings may be seen in Manny’s suggestion that the cat is funny because they don’t usually drink and the association of blacks with cultural stereotypes linking them to police action and colloquialisms. Using the sites as vehicles to negotiate cultural and linguistic meanings seems important, yet I can’t help but think there is more to it. It can’t be ignored, for example, that the pictures of parody in many of the kids’ websites seemed to contain a latent critique or challenge to adult authority. Take for example the image of the cat drinking that Manny placed on his webpage. This image also appeared on Drew’s website.

*Challenging Sources of Authority*

The picture of the cat drinking seems an ideal example to explore the role of parody in the children’s websites beyond simply demonstrating their articulation of real versus absurd. The boys’ who built the webpages were members in a localized boy culture within the Fifth Dimension which valued humor, but in this case, just what’s the joke all about? I suggest that the picture of the cat drinking a beer performed a function similar to the role of the Cat Massacre in Robert Darnton’s 1984 essay “Workers Revolt: The Great Cat Massacre of the Rue Saint-Severin” (Darnton, 1991). Darnton’s essay makes a historicized argument that the workers in a printing workshop were working out class aggression when they massacred the master’s favorite cat. Working in the symbolic realm, the workers were able to criticize the bourgeois and get their point across without getting fired.

…the workers found the massacre funny because it gave them a way to turn the tables on the bourgeois. By goading him with cat calls, they provoked him to authorize the massacre of cats, then they used the massacre to put him symbolically on trial for unjust management of the
They also used it as a witch hunt, which provided an excuse to kill his wife’s familiar and to insinuate that she herself was the witch. Finally, they transformed it into a charivari, which served as a means to insult her sexually while mocking him as a cuckold. The Bourgeois made an excellent butt of the joke. (Darnton, 1991, 114)

Although not as violent and related to age-based sources of authority rather than class, the image of the cat and similar representations juxtaposing monkeys or fuzzy cats and dogs with guns (see Figure, 19) appeared to work on similarly 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 19 Screenshot: Pictures appearing Drew (top and bottom) and Marret’s (top) webpages.

Boundary Crossing in the Web Design Group

My research with the boys who designed webpages provided me with insight into the ways in which children engage both individually and collectively with developing digital personal narratives. Representations used to populate personal web pages made visible important relationships between youth inquiry practices, the
articulation of identity in electronic texts, youth meaning-making practices, and the
flow of expertise and representations in a localized idio-culture. I found 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 web pages 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; a kind of electronic, Chukovskian
“topsy-turvy.”

*Electronic Topsy Turvies*

Chukovsky’s *From Two to Five* (1963) calls attention to the rhythmic songs
children sing where the distinguishing characteristic of the verse being the highly
absurd.
Hardly has the child comprehended with certainty which objects go together and which do not, when he begins to listen happily to verses of absurdity. For some mysterious reason the child is attracted to that topsy-turvy world where legless men run, water burns, horses gallop astride their riders, and cows nibble on peas on top of birch trees. (Chukovsky, 1963, 96)

When the children in the web design group began searching the web for images of the absurd (e.g., fuzzy kittens with guns, dogs drinking beer, etc.), I was reminded of Chukovsky’s work. Chukovsky argues that the topsy-turvy folk verses, so loved by children, are a necessary part of their development of linguistic competence and meaning-making capabilities.

The children skated on the ice
On a hot summer’s day.
(Chukovsky, 1963, 95)

These observations led me to think about the way in which many scholars of new information and communication technologies tend to emphasize what is different about these technologies while my research highlighted ways in which children’s interactions with these technologies represents just one more medium for them to explore language and the ordering of their world. Future research should attempt to articulate more fully relationships between information seeking and cognitive development. Study of the practices of goal-directed inquiry represent seem to provide rich contexts for cross-disciplinary work among library & information scientists, cognitive scientists, education researchers, as well as those concerned with human development.
Boundary Crossing and Gendered Participation

Children engaged in the type of boundary crossing that allowed them to extend their youth cultures toward learning the technical and narrative literacies characteristic of web development. They practiced the manipulation and management of electronic files and learned how they can be returned to over time for additional modification. The projects themselves required the development of the kind of “patient participation” that technology use requires. Gratification wasn’t always instant as is often the case in gaming and sports but the boys learned to accept and deal with moderate levels of frustration without abandoning their projects. In some cases, boys set aside their video games to take part in these activities or simply integrated their gaming interests into the project.

I was disappointed that we were unable to get girls involved in making personal webpages at the Fair Hills BGC site. A strong barrier to girls’ participation in web design was the fact that their baseline participation in the computer lab was low to begin with.

…it is really hard to get her to play on the computer in the first place. Actually, this is the case for many of the young girls at the BGC. [VC: 1/25/2005]

Since participation by girls in the computer lab was sporadic, there wasn’t an extremely popular, girl-centric video game for girls in the 5D that could be used to design a new (intertextual) taskcard. There were certain activities on the computer that girls liked (e.g., Barbie Detective, Carmen San Diego, MySpace.com, Millsbury.com, Neopets.com, and The Sims) but many of these activities were not
allowed in the Boys and Girls Club (if children were caught playing them) due to their incorporation of chat features, the propensity of websites to collect personal information, and the presence of sexualized content or themes. In the fieldnote below, a girl playing Neopets.com rejects suggestions to begin a personal webpage.

...we gained some points towards her goal of 10,000. As we continued out games, Maria came over and asked Tara if she would want to start a webpage in preparation for the next 5D assignment. This was when Tara kind of shut down and didn’t say much because she didn’t want to do that sort of thing. She told Maria that she didn’t want to because she doesn’t like to read and write and do those sorts of things. Later, I tried to convince Tara to start the webpage and told her that I’d help her, but she was too focused on her game. Maybe next time, I’ll give her some suggestions about her webpage in hopes that she will want to start one. [LU: 11/14/2004]

It was disheartening when we were unable to get girls involved in more educative technology-oriented activities on the occasions that they visited the computer lab. To build participation in technology-based activities I felt we needed to cultivate new and different types of brokered interactions. Digital Storytelling seemed like an exciting activity that might address these concerns.
CHAPTER V
DIGITAL STORYTELLING: FAIR HILLS BOYS AND GIRLS CLUB

The web design projects began during the fall of 2004 and extended into the spring of 2005. The Fair Hills Boys and Girls Club closed for renovations during the spring and summer of 2005, my research on web design unfortunately did not continue. Happening concurrently to the web design activities were efforts to support children’s involvement in a different kind of narrative and technology-infused activity: digital storytelling. As part of the course they were enrolled in, the practicum students (for both the fall of 2004 and the winter of 2005) were required to work with a single child or group to produce a digital story and post it on the Fifth Dimension website. The instructor, Tanja, introduced Joe Lambert’s book, *Digital Storytelling Cookbook and Traveling Companion* (2007) to guide the students’ work.

**Why Digital Storytelling?**

Fifth Dimension researchers wanted to integrate digital storytelling into the activity mix so that students could gain experience with technologies of media production while developing literacies related to building and expressing narratives through print and dramatic performance. Lambert suggests that digital storytelling as a medium provides a unique context where individuals can engage in reflexive thinking about their own life stories.

“This is all about creative self-discovery. There's something about the mix of photography and voice and music and words in this process that leads to the real breakthrough: the self-awareness that emerges through story.” (Interview with Lambert in Lasica, 2002)
Although the undergraduates faced challenges with initiating digital storytelling practices in the Fifth Dimension, they managed to hold an instructional session to teach the children some basic video production.

The children began to become very restless and Nari still had to make her announcement about the movie maker class. The children seemed very interested and we all thought that we would have a great turn out but that's not what really happened. We went to the back of the game room and waited for the children to assemble there. We had about 10 kids and that was okay for us but we were hoping for more. We went into the equipment room with these children for there was a white board in there and we were able to separate from the other children and thought that we would be distraction free. As we began to explain the concepts of characters, plot/theme, problem, and resolution some of the children became very restless and left the room and so they were no longer apart of the movie maker class/club. I then showed the children the little movie I made. They were all excited to see there faces and kept saying of that's me or that's so-and-so. [BDW: 10/21/04]

By the end of the quarter, the students were able to build upon this small group of participants, and had managed to get many of these children involved in several digital storytelling projects. I want to focus the sections that follow on three related cases which involve digital storytelling: the bobblehead play group (Misty and Rosemary), Jack, and Rebekah.

**Bobblehead Play Group**

In this section, I describe a case in which two girls begin, via the type of brokered participation I described in Chapter III, to make strides toward developing a digital story by incorporating digital photography practices into their imaginative play activities with small animal figurines: Bobblehead dolls.

A bobblehead doll, also known as a bobbing head doll or wobbler, is a type of collectible doll. Its head is often oversized compared to its
body. Instead of a solid connection, its head is connected to the body by a spring in such a way that a light tap will cause the head to bobble, hence the name. ("Bobblehead Doll," 2007)

Misty and Rosemary, aged 10 and 12 respectively, visited the Fair Hills BGC nearly every day, with their favorite activity being imaginative play with bobblehead dolls and animals (see Figure 20).

As for the two girls I worked with at the end of the day, Misty and Rosemary, their interactions with dolls and technology seemed to fit the gender stereotypes all too well. They eagerly played dress-up with their animal dolls for a very long time, yet both shied away from using the technology more than minimally until I facilitated… I was also very interested by the ease at which they played together in this fantasy world, given their relatively significant age difference. I was very surprised to learn that Rosemary is in seventh grade, and that she was still playing with figurines so contentedly. Additionally, these girls got along as if they were best friends, but when you're that young, three years makes a huge difference in your developmental and social skills. Yet, both girls seemed pretty on par with each other. Perhaps Misty is exceptionally mature for her age, and maybe Rosemary is just a bit immature for hers. [BW: 11/8/04]
Betty’s observations support my own feelings at the time that Misty and Rosemary might benefit from engaging in practices that would increase their interactions with technology. I was aware that the girls’ favorite activity and one day offered them a digital camera for taking snapshots of the toys. I was hopeful when they accepted the camera but got the feeling that they didn’t necessarily want to invite me to play with them. I encouraged one of the service learning students, Betty, to try to extend their interest in bobblehead dolls toward digital photography.

*Brokering Boundary Crossing: Toys as Extendable Contexts*

Betty was able to use the play context not only to get the girls involved in digital photography but in preparing a narrative for possible development into a digital story.

I found Misty and Rosemary, introduced myself, and sat down to start playing with them. I asked if I could see the pictures they had taken so
far, and Misty said she didn't know how to view them. I took a look at the camera, turned it on, and her pictures popped right up on the LCD screen. I showed them to her and Rosemary, and both looked at their work with interest. They were playing with toy animal figurines that they bring/collect themselves, dressing them up; and each had a name. I asked each of them what grade they were in, and Misty said 4th so, noticing that Rosemary looked a little older, I guessed she was in 5th grade, but she told me she's in 7th and comes to play with Misty. [BW: 11/8/2004]

…The two girls were giggling and having fun. I suggested that we could turn their make-believe/play into a movie. The girls got really excited and started planning out a plot instantly. Rosemary excitedly suggested that there could be an epidemic where the animals got sick, but then they find help and eventually get better. Rosemary even said they should make a cast list and a storyboard, but it didn't seem like she was helped by all our recent talk about storyboards there; it seemed as though she genuinely thought of that on her own, and took the initiative to start. I said we should get some paper and start writing some of this down so we wouldn't forget it. I didn't give any direction on how to make the storyboard because Rosemary was taking the reins with Misty's help, and I wanted to see how they were going to do it. Rosemary started by drawing a circle and writing the word "epidemic" in it (she spelled it wrong, but seemed so caught up in the activity that I didn't want to stop her); then she drew arrows coming out of the circle to a new circle, in which she described the next event. She charted the development of their story in this very visual way, which [was] different and creative. [BW: 11/8/2004]

Here we see how Betty was able to expand Rosemary and Misty’s notion of what might be possible in terms or the potential activities that could be related to a favorite toy. By entering and being accepted into the children’s original play context: the bobblehead dolls, Betty could become a broker in the practices that are evocative and spring out of an original thread of activity. It is in this extension or meta-context of play (activity that is “about the play context”) that Misty and Rosemary could more comfortably begin crossing boundaries toward engaging new practices and texts.
After taking the initial photos and thinking of a plot, the time had come to leave the safe corner space where they played with their bobblehead dolls together week after week and enter the computer lab to do something new (see Figure 21). Interestingly, it is the younger girl, Misty that takes up the challenge of uploading the photos.

Then Rosemary's mom came to pick her up, and Misty asked if Rosemary could stay and play for just a few more minutes and her mother obliged. At this point, Maria suggested that we upload the pictures that they took already, so they don't get erased from the camera accidentally. Neither of them jumped at the opportunity to use the technology, claiming they didn't know how, and seemed to prefer to sit together and plan out their story on paper. But we were able to convince Misty to accept the technical side of the teamwork, while Rosemary continued to finish their cast list. Misty came with me and told me that she could only hook the camera up to the computer, but that she didn't know what to do from there. I told her I'd help her and asked her if she wanted to sit down. She preferred to stand. I walked her through the process, explaining each step. She did a good job following my directions and really seemed to be paying attention. She lost interest, however, and went back to Rosemary when the computer experienced difficulties downloading and slowed down. [BW: 11/8/2004]

Misty never felt quite comfortable enough to sit down in the computer room and when she encountered technical difficulties uploading the photos, she quickly abandoned the project. Although the interactions didn’t result in a fully developed project, I think Betty’s role as broker can’t be underestimated as she successfully supported the girls’ boundary crossing toward practices they had previously shied away from in the Fifth Dimension. With my help Betty was able to load the pictures they took (see Figure 21) on to a computer and save them to a floppy disk. Although Betty, Rosemary, and Misty didn’t end up actually producing their digital story, they expanded their scope of participation and gained confidence with taking pictures with a digital camera and
connecting that camera to a computer via a universal serial bus (USB) connection to upload the photos.

Figure 21 Misty and Rosemary's digital photos of their Bobblehead dolls.

Jack

Betty’s work with Misty and Rosemary didn’t continue over the course of the quarter as she began working with two other undergraduates, Harmony and Bethany, on creating two other digital storytelling projects to fulfill requirements for their practicum course. Although Betty was interested in continuing work with the girls on this project, she began working with Jack since he emerged very quickly in the Boys
and Girls Club as a highly engaged user of video cameras. Jack was first introduced to videography as part of the application that children filled out at the beginning of the fall quarter (see Figure 22). The application served the dual function of gathering information about our participants while introducing new practices such as basic computer, media, and multicultural literacies. In one section the child is prompted to “Grab one of the club’s digital cameras and take a picture. Save it to the computer’s desktop. Get your partner to help you if you don’t know how.” The fieldnote below describes Jack’s experience filling out the application.

Harmony and I both started to work on the applications with them. We got to the part where they’re supposed to take a picture. I went to get the camera and accidentally came back with the video camera. The boys helped me find the digital camera and started taking pictures. They seemed really excited about it. They took pictures of me, of each other, and of other people in the computer room. But Jack was mostly excited about the video camera. He spent a long time walking around the room with it, filming and taking still pictures or just looking through it and not recording. He interviewed a lot of people, including me, about their favorite colors and the music they like and their best friends. I think a lot of the footage was aimed at people's stomachs and that the camera was moving enough to make someone sick watching it. Another boy came up and asked Jack if he could use the camera for a while. I tried to talk Jack into it, but I don't know if the other boy ever got a turn… Jack could work on sharing things a little more. I think he was too excited about the video camera to give it up. [SH: 10/6/04]
Videography as Play Practice

Jack’s quick attachment to the video camera was reinforced by the status his peers conferred on him as “the Camera Man.”

I noticed that Jack was still playing with the video camera and had been videotaping the whole pool game. As we begun the next game, Jack was right in there with the video camera, taping our every move, and Skyler and Mark were eating it up, giving him special privileges to get closer to the pool table than any of us since he was “the Camera Man.” They even grabbed each other’s arms and held them up in a victory pose upon winning the prior game, posing triumphantly for the camera.

[BW: 10/7/04]
His excitement about using the video camera seemed promising to Betty and Harmony as they felt that Jack would have the most interest out of all the children in creating a digital story. Initially, their assumptions seemed to play out as expected.

Jack found me immediately and called to me from across the room. It was almost as if he had been waiting for me to walk in, and I was so impressed that he remembered my name. He rushed over to me and exclaimed that he wanted to get the video camera and make a video with me. It was such a relief to have him approach me! Jack came back with the video camera before I even had a chance to realize he'd gone. John told Jack that he could even go outside and film the swim practice if I would go with him. Of course I said yes, and he was so excited. John asked him if filming outside would be better because it may be too dark inside. But Jack knew how to operate the camera very well, because he demonstrated use of the "backlight" feature. I asked him to teach me about it, and he was very patient and thorough with me. He showed me three times in three different settings how the backlight feature would be applicable. He pointed the screen towards me so I could see the difference in how this feature would light up the screen in a dark room to make the picture more visible... When we got outside, Jack did not waste any opportunities to capture action on camera. He videotaped two boys playing handball, before we got to the gate to enter the pool area. We stood in the corner by the pool office for a long time, getting comfortable with the surroundings and figuring out the best angles to shoot from. We realized that had a very good wide angle view from there and could see not only the swimmers, but also the instructors. Jack did some practicing with the zoom feature, getting first the swimmers, and then eventually zooming in on the instructors as they were giving instruction. [BW: 10/12/04]

As Betty’s fieldnote suggests, Jack was highly engaged with videotaping and in these early interactions it was apparent that he was committed to exploring every feature the camera offered. Betty, Harmony, and Bethany’s goals for creating a digital story were supported by his desire to work with the technology. Very quickly Jack went from having no experience working in this medium to taking complete ownership of the practice of getting footage.
He frequently reviewed his footage on the video camera, which I found very interesting. I kept suggesting to him that he might want to wait to watch the tape until we got back inside where it was quieter, and to maximize the time and the battery power by just taping outside. Even though I reassured him repeatedly that we could watch it later, he couldn't seem to break the thrill of instant gratification. After several minutes of thorough filming, we moved around to the opposite side of the pool, to get the other perspective and different angles. We spent even more time over there, practicing with the camera. …I suggested that he play around with different filming techniques, explaining the concepts of panning and zooming (which he already seemed to know), so we worked on practicing these skills… though he did not have a steady hand, his patience and dedication was remarkable. [BW: 10/12/04]

After obtaining a considerable amount of footage, Betty suggests that they begin working with the footage on the computer. Jack agrees and they take the camera inside. Betty finds that he is extremely confident with the technology and enjoys working with the software to add titles and credits.

Eventually the swim team practice came to an end, and he video taped the coach's concluding remarks to her students. Jack, himself, realized that this would make a good wrap-up, and when I asked him if he was ready to go back inside and start watching and editing the footage, he nodded in agreement. When we got inside all the computers were once again occupied and we had to wait a few minutes. Jack again displayed great patience for someone his age. When a computer opened up, we sat down, and Jack immediately retrieved a USB cable. He knew how to plug it in all by himself, and did this without any problems very quickly. I helped direct him to find Windows Movie Maker, but he eventually found it all on his own. He didn't seem completely experienced with this program, but he did seem very confident. He clicked on a few things, before he found what he was looking for, but I didn't even say anything to help him. In fact, I asked him how he knew what to click on and he said his friend has this program. Jack seemed like a very quick learner, even when he wasn't familiar with a computer program, because he was so confident with it and picked it up so quickly. He started pushing buttons without me even saying anything, and before I knew it, Jack had already set up opening credits to our movie with a scrolling feature. I suggested coming up with a title, so he suggested: Boys and Girls Club Local Swimmers. I told him what a
good idea that is, but that maybe we should change it to Local Athletes, to include the track team too. He agreed and typed it in with both of our names on it. I was again highly impressed that he was so technology savvy. I reminded Jack to grab his disk to save this work so all his hard work would not be lost. [BW: 10/12/04]

Although the project seemed to be moving quickly towards the development of a project, several challenges began to emerge. Jack’s interactions with the technology were playful, having an interest and curiosity about how the technologies work. Would Jack be able to move beyond these very informal, toy-like uses of the camera and software to engage in the practices of planning and executing a narrative?

Challenges to Digital Storytelling: Contradictions between Goals

While Betty and Jack made strides toward working with the footage, when they met again (two days later) with an additional undergraduate, Bethany, no progress towards creating a digital story was made. To the contrary, it seems that the activity fell apart just as they began to develop a narrative.

I paired up and worked with Betty Worth, another undergrad, and we worked with a little boy Jack. We sat down in front of one of the computers and watched the footage that Jack had shot on Tuesday of the kids over at the pool. The film moved very slow and jumped ahead in weird ways and so Jack got up and said, "Why is that doing that? I don't like this. This is dumb." He started to walk away and Betty caught his attention with the video camera and suggested that they try to make a new story. She asked, "Do you have any ideas? What should we make this story or movie about?" Jack stood there playing with the video camera tuning everything else out and not answering a single question. [BDW: 10/14/04]

At this point, the students are confounded since although Jack was engaged with using the video camera, they were struggling to expand his participation toward practices that require the kind of patience needed to overcome obstacles with the technology or
to develop narratives. When he got frustrated that the video footage has problems,
Betty attempted to pursue the development of a storyline.

Betty proceeded to persist to try to get some ideas and still she got nothing. She looked at me and exhaled and rolled her eyes and just under her breath said, "I don't know how we will make this work." I responded by saying, "I don't know either. It doesn't seem possible." She then asked Jack if he wanted to make a story about his friends and what they do at boys and girls club and he just shoved the video camera in her face and continued to film with no reason or meaning behind his filming. She asked what actors/characters he'd want to have and he just turned around and ignored her. She began to try to make up a story line with him. She suggested that they make a story about him and his brother Manny and how they are trying to make a movie and they can't put the footage on the computer so they ask Mr. Nixon for help and he fixes the problem and everything worked out ok. Jack just shook his head and continued to play endlessly with the camera. Betty tried to get Jack to go and talk to his brother and tell Mr. Nixon about the story and he just ran into the other room with the camera and ignored all adult suggestions. [BDW: 10/14/04]

Bethany’s fieldnote illustrates well the way in which Jack really thought of the camera as a toy rather than as a tool to help him participate in a more complex activity. In this sense, the challenge for the undergraduates was to broker interactions that would support Jack’s movement toward an extended repertoire of practice including those literacies that relate to developing a story, planning with others to build a multilayered project, and, most importantly, working at activities even when they don’t provide instant gratification. At this point, the students made attempts to develop a narrative for Jack, requesting his input to modify the story.

I took a break from working on creating this new task card to try to feel out the prospect of turning our footage into an actual story with Jack. I began asking him how we could make our footage into a story. He didn't seem to know how to answer at first, so I began prompting him a bit. Since we had already done a lot of video-taping on Tuesday outside
at the pool, I was desperately trying to come up with a way to make a story out of all of it... Aware that our story would need a problem and resolution, and that he was relying on reality (not creativity) for this project, I suggest that our movie could depict Jack and his brother Manny coming to the Boys and Girls Club after school, getting the cameras immediately, taking lots of footage, and then having problems uploading it onto the computer (which is exactly what happened to us). Jack was catching on at this point, and smiling and nodding in agreement. Then I asked him another leading question like, "When we have a problem getting the computer to work, who do we call over for help? Who else are we going to need to act in our movie?" Jack immediately answered, "John." We decided that in our movie, John would be able to help us, and everyone would live happily ever after. Jack seemed genuinely excited about our plan, and even called "Mr. Nixon" over to tell him about it. John commented on how neat it would be to show what really goes on during a typical day in the life of Jack or Manny at the Boys and Girls Club. [BW: 10/14/04]

Here Betty attempts to integrate the challenges they’ve been facing with the technology into the narrative itself. She seems to get Jack’s attention and participation toward moving forward with the project.

Then, I asked Jack if he knew the difference between "fiction" and "nonfiction," and quickly responded with the correct answer. I reaffirmed that this would be a "non-fiction" story, and he agreed. John started discussing the idea of how this could be a great example of reality television, and Manny nodded again. Then I asked Jack who the actors in our movie would be, and he stated: himself, Manny, and Mr. Nixon. I suggested that Jack go find Manny and we could start filming a scene in which Manny walks into the Club with his backpack, puts it down on a hook, and goes to get the camera. Jack even added to this part the idea that we could capture footage of them "signing in" when they get there, to set up the scene. [BW: 10/14/04]

Although Jack seems to be interested in continuing the project while Betty works on typing up a new Fifth Dimension taskcard, he takes off with the camera to film some children playing.

But when I followed Jack after a few minutes, I realized that he had not stayed on task. Rather than video-taping Manny "walking into the Boys
and Girls Club," he was playing with Nick, Mark, Skyler, and some other children, video-taping them. He continued to do this for a while, and seemed to be having a great time just playing around with the camera. I didn't have the heart to peel him away from his fun with the other kids, especially considering that he would probably learn more through his trial-and-error process in the arena of "play." [BW: 10/14/04]

Betty was frustrated again but understands that Jack simply wanted to have fun with the camera. Bethany and Betty make no further attempts toward getting Jack involved in digital storytelling but the following week, Bethany has an uncomfortable interaction regarding Jack’s perceived ownership of the camera.

About ten minutes later Jack ran up to me and tried to take the video camera and run away. I jumped and grabbed it and said, "No Jack. I'm using this right now and you can't touch it. We work with it together in a little bit, but right now it's my turn to use it." At this he still continued to fuss with it until I physically removed it from his hands. He walked away and I continued to try to upload the footage. About five minutes later he came back with three other little boys and began to slam his hand onto my personal laptop. I told him that he couldn't do that and that it wasn't nice to do such things and that he was making his time to use the camera smaller. He said, "Why? It's not like this costs much. It doesn't cost more than $200." And I told him that it did cost a lot and that the equipment that we were using was very expensive and that he needed to handle it with care and that if he didn't he wouldn't be able to use it. I also explained that the laptop that I was using was my own and that he was not allowed to touch it for I had borrowed it from my dad and if Jack broke it he couldn't afford to replace it. [BDW: 10/19/04]

This interaction provides further evidence that Jack thought of the video camera (and quite possibly the laptop as well) as toys that are easily replaceable - part and parcel of his desire to play and project an image to his peers as “the camera man.” This disappointing interaction with Jack and their experiences encountering great difficulty in getting the children to want to create digital stories motivated the undergraduates to
create a movie makers’ club. They held an informational and instructional session and tried to include Jack but he was convinced that he doesn’t need to participate since her was already an expert.

… I noticed that he had not signed up on the list. I questioned him as to why he didn't sign up since I know he loves to use the camera, and he claimed that he already knows how to do it and that he's virtually an expert. Nari was standing there and we both told him that it would be in his best interest to participate, and that he could help us out. He did end up signing up, before he was picked up shortly. [BW: 10/19/04]

To assist the undergraduates with their projects, the course instructor, Tanja, came to the club and discussed strategies the students might employ to get children involved.

Tanja arrived, and John and I caught her up on our ideas and plans from yesterday. Tanja suggested that we videotape each other telling a story first, and that the kids would want to follow. To talk to them a little bit about storytelling, I realized I would need a storyboard, so I set to work, trying to finish the one with Jack that we had already started in a more preliminary outline form. He was playing a "Monsters, Inc." game with Lester, and seemed rather disinterested in my storyboarding. I sat next to him and persisted. Tanja and Harmony walked up to see what I was doing, and they both noticed the difficulty I was having getting Jack to concentrate on my storyboard. Tanja said that in order to get him to concentrate on the storytelling part of the digital story, we would have to make them turn their game off to have their undivided attention. The minute they heard that we were going to have to take them away from what they were doing to attend a "class," Jack decided he no longer wanted to do it. [BW: 10/20/04]

The fundamental problem for Harmony, Betty, and Bethany was that although Jack sees the video camera as an extension of his desire to look cool by performing for his friends as “the cameraman”, his goals for play are largely incompatible with digital storytelling.

Still, the problem was getting them to want to tell a story with the camera, once they had it in their hands; because usually, once Jack gets
a hold of the camera, he's not interested in any kind of structured activity, but rather goes straight to videotaping/playing around with his friends. [BW: 10/20/04]

The undergraduates are conflicted about their interactions with Jack, their understandings about how children often learn through play, and the fact that while an activity like digital storytelling might include some elements of play, there are definitely structured, work elements to the process. These contradictions make digital storytelling undesirable for Jack as he simply wants to play “in the moment.”

I still feel guilty for neglecting the kids in favor of figuring out how to make my project work, although I know I have not been completely neglecting them. I wish I could just play with them more, and teach them more on their own terms so they don't feel like they're being taught like they are in school (which I believe would be more congruent with the conception of the 5th Dimension), rather than teaching them on my terms. I feel as though making Jack turn off his game to sit through a class might turn him off to making a movie altogether, which it did for the time being. I think if I go along with what he wanted to do more, he would seem more interested, which he did by the end of the day when I was struggling to complete our storyboard. I hope he is more willing to work with me on this next week, if I let him learn by playing. [BW: 10/20/04]

The students hit a low point toward the end of October as they seemed to have lost the footage they obtained with Jack earlier. They realize that time is running out in the short, 10 week quarter and they need additional footage to complete the project. Betty was committed to making the process fun so she and Harmony approach Jack another time with a story line that enables him to discuss his use of the video camera.

Harmony and I decided to work together on our project, so we talked to Jack about acting out the first scene of our digital story. According to our storyboard, the first scene of our movie involves Jack and a friend walking into the Boys and Girls Club with their backpacks on, as they are naturally arriving for the afternoon. Originally, Jack chose Lester to
act with him, but he wasn't there yet today, so I asked him if he wanted to ask Manny to help us. He said that we could, but he wasn't sure if Manny was going to want to do it. Sure enough, Manny jumped at the chance, and followed directions to a tee. Neither boy was reluctant and both grabbed their backpacks immediately to begin filming. We went outside, and I called out "Action!" for effect like they do in the movies. The boys started walking into the Club very eagerly. We did a few takes, and they wanted to see what they looked like, of course. They pointed out that you couldn't see anything at one part, signifying that the lighting was poor. So taking this expertise and advice, I suggested we do another "take." Both boys cooperated extensively. Then we got to the part where Jack picks up the camera (his favorite part!) and he was very thorough, showing me in detail the process of how he turns it on and gets ready. It was an interesting storyline, very reality television-esque, with my videotaping Jack using the video camera.

This new approach seems to support Jack’s movement towards finally making a digital story. The group together finds a storyline that is responsive to his goals and powerful enough to make him want to stick with the project even when the footage doesn’t turn out right the first time. These positive interactions must have caught the attention of other children because when Jack went home that day, a little girl, Rebekah, approached the group with an idea for her own digital story.

…Jack's older brother came to pick him and Manny up. I told him we would charge the camera and work more on our movie tomorrow. As I went back to the computer room to figure out how to charge the camera, and before I even had the chance to figure it out, a little girl approached me and asked me what my name is. I said, "I'm Betty. What's yours?" She told me her name is Rebekah. Then she said, "Um, I want to make a movie." [BW: 10/26/04]

Harmony describes the same turn of events in her fieldnotes. She reports that “apparently Rebekah had seen Jack and Betty making a movie and wanted to make her own. We spent the rest of the time writing down Rebekah's story.” [HH: 10/26/04]
this point, we see that Jack has made some progress toward engaging in new practices but it seems unlikely that the undergraduates will pursue working with him if Rebekah shows greater engagement. Will Jack be able to expand his perspective on video production?

*Rebekah*

When Rebekah approached Harmony, Betty, and Bethany to work on a digital story, the undergraduates jumped at the chance. Rebekah had apparently been observing the undergraduates’ interactions with Jack and attended the movie makers’ club instructional meeting and was ready to get started.

I quickly jumped at this opportunity and offered to help her. I told her it's a good idea to begin by telling a story. She informed me that she already wrote her story down, but that she lost it. So we sat down, and I asked her to retell it to me as best as she could remember it. I wrote her name at the top of the piece of paper, and asked her what her last name is. She spelled it for me, and when I asked her where her family is from, she told me Iran. Then she started telling me her story. This is what she said: "Sarah and Zoe are really rich, and they decide to go downstairs to watch TV in their movie theater. But they couldn't find it, and they figured out someone stole it. They wanted to call the Secret Service, but first they went to the Boys and Girls Club and asked John. John couldn't find it, so they called the Secret Service. They found the robber, and he was watching TV on their TV on the couch. The robber went to jail. And Helen and Zoe gave the Secret Service presents."

[BW: 10/26/04]

Rebekah’s detailed story impressed the undergraduates since she was only 6 at the time of their interactions. Betty was surprised that she was willing to work on a story board and illustrate her ideas (see Figure 23)

I wrote all this down exactly as she dictated it to me. The next step was to create a story board out of it so that we would know how to film our shots and scenes. Rebekah eagerly ran to get a piece of construction
paper and a huge basket of crayons. I drew three big boxes with lines adjacent to them on each side of the paper, setting up for a six scene storyboard. Rebekah drew the pictures in the boxes as she sees her movie unfolding. Harmony and I sat next to her and dictated each scene of her story back to her so she could draw it. We would invariably ask her questions about what was being portrayed in her drawings, and she would explain in great detail which character was which/who was who, and what they are doing in each particular scene (see Figure 23). [BW: 10/26/04]

Figure 23 Rebekah creates a storyboard for her digital storytelling project.

*Storytelling as Play Practice*

It is difficult to understand why Rebekah was so motivated to create a digital story. Creating the storyboard wasn’t easy for her in terms of writing the lines. Betty helped her in this aspect of the work.

I then began helping her by writing the narration of her story out on the lines I had drawn next to the picture boxes… John came over and found out that he is in our movie, and stuck around for a few minutes to compliment Rebekah on her storyboard, as well. At about this point, Rebekah's mother came in to pick her up. We let her read Rebekah's story and she seemed intrigued and impressed. [BW: 10/26/04]
The positive feedback Rebekah received from the site coordinator, John, and her mother may have been one factor in her desire to create the digital story. There is also evidence that the characters and storyline flowed from real people at the club and her relationships with extended family including a cousin, Zoe, who also visited the club.

After Rebekah left, John, Maria, Harmony and I were discussing her family situation a little bit. He explained to me that the main characters in Rebekah's movie, Helen and Zoe, are not fictitious, but rather real kids who go to the Boys and Girls Club. [BW: 10/26/04]

The storyline involved her cousin, Zoe, and seemed to evoke some tensions and family conflict that Rebekah had been dealing with over time.

…she described Helen and Zoe as "really rich" and going to watch TV "in their movie theater." It is quite remarkable that kids this young are so aware of class stratification. This example is pretty specific, so it also leads me to believe that she knows someone who actually does have their own movie theater at home. Interestingly, John informed us that it is actually Rebekah's side of the family that is more settled, while Zoe's is less wealthy. Maria and John told us that in the past, one of them has called the other "poor." This further twists the plot as to why she would describe Zoe as the one who's "really rich...with her own movie theater." [BW: 10/26/04]

On the day of filming her digital story it became clear that Rebekah was very exited to begin. Although she was resistant to reading the story at first, she allowed Betty to help her and was ultimately successful.

Rebekah came and found me and asked to continue working on her movie. I pulled the storyboard we had been working on out of my wet backpack and reviewed her story with her. I asked her to read it, and at first she was very shy and shook her head that she didn't want to read it. "No, you!" she said, wanting me to read it. I said, "How about if I help you." That's all I needed to say, because once she started reading, she was just fine. She rarely messed up and seemed to read with great ease and speed. Every now and then she misread a word as something else it sounded like, but she continued to read, rather than stopping, getting
frustrated, or asking me for help. I did help correct her when she misread a word, but on the whole, she did very well. When it was time to turn the page over and read the back, she claimed it was my turn. I indulged her and read the back side, because she had done so well and worked so hard on the entire front side. [BW: 10/27/04]

*Complex Motivations for Participation*

When Rebekah began to add characters and indicates that she wants real people to act out the story rather than making a movie with pictures and narration, it became apparent that the reasons for her participation were varied.

As I finished reading the end of her story, she asked me if it would be ok if she added more to it. I was surprised by her enthusiasm, and of course welcomed the opportunity to have a child who really wanted to do this digital story with me. This is what she added: There are three suspects, "Creepy," "Crazy," and "Ugly." The Secret Service went to each of their houses and found out it was the Ugly guy who was the robber, watching their TV. Then Harmony and I decided it was time to start filming this creative movie of Rebekah's. We asked her if she wanted to draw pictures and narrate, or if she preferred to have real people act it out. She definitely wanted to have all the characters act it out... Rebekah was our director, I was the camerawoman, and Helen, Zoe, Rebekah, John, and Harmony were the main actors. Harmony and I helped Rebekah make little signs out of construction paper to hang around each of the robbers' necks to identify "Crazy," "Creepy," and "Ugly." Rebekah found another undergraduate to play the role of "Crazy," and I was designated as "Ugly," and Harmony was "Creepy." [BW: 10/27/04]

On one hand, Rebekah seemed to have a story to tell that might have been related to her home and family relations. Yet, it can't be overlooked that she took pride in the attention and respect she received as the project progressed. Along similar lines, she was able to guide or challenge the supremacy of adults by directing the movie – a role reversal that is in agreement with an approach many of the boys took in building their webpages. Jack, through his play with the video camera also seemed to
enjoy the power conferred on him as a “camera man” and the related respect he received from his peers when he was filming. One dimension to Rebekah’s involvement that must be mentioned is the performative aspect. Rebekah’s enjoyment as she pretends to handcuff the “ugly thief” character is palpable when she announces that the thief was “lying” and escorts her away to jail (see Figure 24).

When we started filming, Zoe became very camera shy and just giggled the whole time. Luckily we had prepped Helen on the storyline, so she kept the plot going, adlibbing the whole way. John was great too, and all of us were have a lot of fun. Rebekah and Zoe were giggling a lot, but Rebekah was definitely taking her role as the Secret Service seriously, saying the cutest things to try to interrogate the robbers. She asked each one, "Where were you last night?" and, "Did you take these nice peoples' TV?" Then, before I got the chance to play my role, another little girl came up to us, saw what we were doing, and asked if she could be part of it. Her name is Mischa and she asked specifically if she could play the role of "Ugly, the robber." I gladly handed over the sign hanging around my neck that read, "UGLY" and each participant really seemed to have fun with their role, getting into character. The undergrad who played, "Crazy," started dancing and shaking her head really crazily, and Harmony said she was doing something with a beetle (on the recommendation of Mischa), and Mischa lived up to her character as the ugly thief, saying last night she was looking at herself in the mirror and screaming when Rebekah/the Secret Service asked her what she was doing last night. Then Rebekah said that she was lying, and pretended to handcuff her and escort her away to jail. According to her storyline, she then went back to Helen and Zoe to collect thank-yous and presents from them. As we were filming the last scene with the ugly robber, Rebekah's mom arrived to pick her up. She waited until we completed the taping of her digital story, smiling, and thanked us so much for doing this with her. [BW: 10/27/04]
For the undergraduates, filming the digital story was a great victory. They had struggled to support Jack and saw their inability to finish a digital story with him as a failure. They didn’t understand why Rebekah, as a six year old, was able to focus on the storyboarding and storytelling aspects of the project while Jack struggled with these aspects.

I am very proud of the work we completed with Rebekah today. I was really intimidated by this digital story project, but I think enough of the undergraduates have cooperatively worked together to make this seem appealing to the kids that Rebekah approached me to make one! Not only did she just say she was interested in making one, but I was also very impressed with Rebekah's creativity and ingenuity for this story. She came up with what seems like a very original story, although I'm sure if we analyzed her life we could find great parallels, and followed through with every aspect of the movie making thus far. Unlike Jack,
she remained focused on the task at hand. Where Jack sometimes grew impatient with the task of a story, and mostly preferred to simply videotape his friends, Rebekah actually helped gather characters to act in her movie and followed through with her part as the Secret Service as well. She did not grow bored with the storyboard or afterwards when it came time to actually film. It's just the editing and special effects that needs to take place now, which unfortunately she cannot help with right now since I'll be working on it at home. But hopefully I'll find a way to keep her involved; and I'm sure her mom would love a copy for Hanukkah! I really enjoyed working on this project with her today, and feel as though doing this project has given us not only a goal, but also a something to work through with the kids through which we can bond with them. I feel like Rebekah has demonstrated complete brilliance for a first grader and has probably learned so much just by interacting with Harmony and I about storytelling and movie making. But the best part is that she seemed to be eager and having fun with it, playing and acting. Now that seems to be the real goal of the 5th Dimension. [BW: 10/17/04]

It’s interesting that Betty and Harmony didn’t consider their inability to get Rebekah involved with the more technical aspects of digital storytelling as a failure. The students did all of the video editing at home – tasks that possibly could have been done in conjunction with Rebekah. Yet, the close bond the students formed with Rebekah and the role they played in helping her tell and perform her story can’t be ignored. They created a context where Rebekah could share her work with her mother as a combination Hanukah-birthday gift by creating a personalized slide at the end of the movie.

Then I remembered that I had wanted to tell Rebekah that her movie was done (since Harmony and I mostly finished working on it last Thursday). I went to tell her so she could see how excited I am about it and hopefully get excited herself. She asked me if she could see it, but I regretfully told her I had forgotten it at home, but that I would bring it to show her soon enough. A couple of weeks ago, Harmony and I discussed how cute it would be to give Rebekah an extra copy of her movie to give to her parents as a Chanukah present, and what a great present it would make for the kids to give their parents for the holidays.
We had mentioned this to Rebekah in the past, and she seemed very excited about the idea. So today I asked her if she wanted me to include a slide at the end that would say happy Chanukah, and she said yes. She even suggested writing it down on a piece of paper for me so I wouldn't forget to put exactly what she wanted it to say. She also wanted it to say happy birthday to her mom. [BW: 11/16/04]

Rebekah attended the screening of her film with her mother and was nervous at the beginning. One undergraduate noted in her fieldnotes that Julia was nervous on the first day of screening but by the second day where the films were re-screened she was recruiting people to be sure to watch her movie.

After she knew that she was on the screen, she was hiding in the wall and watching. Her mom was watching with her smile. After few minutes, Julia stopped hiding and sat on the floor to watch her own film "the secret service". She did not have any strong reactions but just watching the film concentrately and quietly. [PHW: 12/1/04]

…it's interesting how Rebekah had different reactions to her own movie yesterday and today. She was shy and hiding on the first day. But today, she was asking around and was inviting people to see her film. [PHW: 12/2/04]

*Boundary Crossing in the Digital Storytelling Group*

As I mentioned previously, it was surprising that the undergraduates had such disparate views of their interactions with Rebekah as opposed to those with Jack. Both children came to the digital storytelling project with their own goals. Aside from the desire to tell a story, Rebekah’s goals were relational in that she wanted to create a context where she guided the activity of adults and older children. Rebekah’s goals were also performative in that she wanted to be on camera illustrating (via a storyboard) or acting out her narrative (through acting). On the other hand, Jack’s
goals were less about telling a story, yet like Rebekah, they were strongly relational in that he wanted to use the videotaping practice as a way of cultivating an image among his peers. He had fewer desires to control the adults but wanted to break away from their control by acquiring the camera. Along similar lines, rather than being performative, Jack worked with the camera for the sake of interacting with the technology itself. In a kind of technology-determinist way (in most circumstances) Jack was satisfied with knowing and playing with the technology as a toy, although in this his repertoire of practice did begin to expand over time.

In terms of boundary crossing, the undergraduates were able to broker a context where a younger child, Rebekah, was able to extend and practice basic literacies related to developing narratives, reading, writing, and drawing. Rebekah learned how to work with a group of people over a number of days to accomplish a goal. She developed a project that she could share with her local community and family. Although the undergraduates didn’t engage her with the video and computer technology in terms of acquiring and modifying footage, they demonstrated the ability to support Rebekah’s efforts at overcoming challenges in reading. The project built Rebekah’s vocabulary in the areas of video production and digital storytelling.

I was disappointed that the undergraduates felt that they accomplished little with Jack. By the end of their interactions with him he had begun to think of the video camera as a tool that could be used to tell a story. He made contacts with some of his friends to begin making a movie that had a story. By the final fieldnote, he was viewing footage for quality and demonstrating the patience to perform in multiple
takes to get the right shot. The undergraduates themselves crossed boundaries toward using Jack’s goals as a gateway to accomplishing their assignment. They were incorporating his desire to express his knowledge of video methods into their latest storyboard – an approach they hadn’t taken prior.

Unfortunately Betty, Harmony, and Bethany weren’t enrolled in the winter as Jack crossed even more boundaries toward becoming a member of a group making a movie about the Fifth Dimension’s Wizard. Jack became the dedicated cameraman for the “BGC News” project and served as a mentor to another child who wanted to learn to film.

Jack and Micah worked together as a team to film several interviews. Jack was an expert at filming and knew how to play around with it. Jack taught Micah how to zoom in and out and Micah learned it pretty fast. [JEK: 2/23/05]

Jack took his role as cameraman seriously. On the day of filming rather than commandeering the camera after the shoot was completed, he took ownership of the equipment and put it away correctly. One of the undergraduates took some digital photos on the day of the shoot and it’s evident that Jack is holding the camera not like toy but like equipment (see Figure 25).

Scout asked John, “Everybody think you are the wizard. What do you think?” John answered, “I don’t know why everybody thinks that. The wizard has been around here for quiet long time even before I came here. So I don’t know why they think that. Maybe it is because I was always in the computer lab.” John answered. “Do you think the wizard has brooms?” Scout asked. “I don’t know but I think the wizard use the computer these days” John replied. That was our last scene for today. There were many undergraduates and children all around us and they watched us until the end. Jack (10) put all camera equipment back
where it belonged to and we thanked all the children for participating in the interview. [JEK: 3/2/05]

Figure 25 Jack on the day of filming the “BGC News” digital story.

As a result of his efforts on the BGC News project, Jack began to get respect from the practicum students for his maturity in conducting himself in addition to his skills.

Jack was very mature and did not ask for any help from undergraduate about how to film. He has better knowledge of using video camera than I. [JEK: 3/2/05]

Jack’s movement towards conceiving of video production in new ways was made possible because interactions and observations were made over long periods of (somewhat) unconstrained periods of time. The practicum students that worked with him and Rebekah attempted to create contexts that were individualized to meet their particular needs and interests. When my research moved to the Polvera Boys and Girls Club, the approach shifted toward creating activities that were generalized to
groups of children rather than to individual participants. In Chapter VI, I describe my efforts to design and implement these more generalized activities and discuss their relevance to supporting boundary crossing toward new practices associated with new ICTs.
CHAPTER VI

FURTHER DEVELOPING TASKCARD DESIGNS: POLVERA BOYS AND GIRLS CLUB

When the Fair Hills Boys and Girls Club closed for renovations, Michael Cole began communicating with the Boys and Girls Club’s regional administration about opening a site at their Polvera Branch. The administration asked the Fifth Dimension researchers to open a research site at their branch, but unlike previous 5D sites where the activities provided nearly free-choice for the children, the administrators of this site took a daily, comprehensive approach to programming. This branch had their own tight structure and they wanted to know exactly what activities would be designated for each day. I thought that this site would provide an ideal opportunity to further explore and articulate intertextual taskcard design as a specific approach for creating literacy events to support the acquisition of competencies related to new information and communications technologies (ICTs). To do this, I knew I had to incorporate the elements that made the first intertextual taskcard (see Figure 6, p. 63) engaging to children at the Fair Hills B&GC (youth cultures) while addressing the core challenge of gendered participation that had emerged when I previously attempted to use electronic games as gateways to learning new practices.

Reflections on Intertextual Taskcard Designs: Video Games as Gateways to Learning

The Zoo Tycoon activity page (see Figure 6, p. 63) was a highly engaging design that introduced practices such as searching the web, manipulating and applying information gleaned from this process, and building a personal webpage. An attempt was made to create a taskcard that was permeable to the discourses and lifeworlds
children bring to literacy events (in this case interests in computer gaming) while 
engaging them (via intertextual chaining) in literacies related to participation in 
electronic discourses and problem solving.

Despite the success with this taskcard design, designing taskcards around girls’
electronic games and websites remained elusive. Most of the games that girls liked to 
play had aspects of relationship-building or chatting online incorporated into their 
design (e.g., NeoPets and TheSims). This finding is in agreement with a study funded 
by the American Association of University Women (American Association, 2000) 
which concluded that girls prefer games based on relationships and chatting rather 
than on themes of violence and strategic domination. Unfortunately, all of host 
institutions the Fifth Dimension has been involved with (and I suspect most 
afterschool programs) bar children’s access to chat-enabled electronic activities 
(oftentimes for very good reasons having to do with internet safety).

These difficulties associated with augmenting girls’ participation in ICT-
related practices prompted me look more closely at the electronic games that girls 
played most often in the Fifth Dimension. When I started this project, intertextual 
chaining and boundary objects were ways I thought about doing design by capitalizing 
on the relationships between play and more educative texts and the fact that artifacts 
and play texts could be used by multiple communities of practices. In light of my 
prior findings, I needed to apply these principles to understand existing relationships 
and community use of electronic games to get at just why it was so hard to mitigate
gendered participation and interest in these activities. I began looking toward youth
culture and popular 5D activities for connections that might be made to new literacies.

It was in these efforts that I first began to notice that there were different
relationships between boys’ and girls’ games on one hand, and toys and the
infrastructures of information associated with the internet, print materials, and other
multimodal activities on the other. As I mentioned before, I was using Kristeva’s
concept of intertextuality to support my suggestion that if youth cultural texts are
examined, adults might find points of intersection with more academic narratives and
practices. I noticed that the girls in the 5D enjoyed playing *Let’s Ride: Champions
Collection*. When I attempted to develop activities which (in a way similar to the Zoo
Tycoon Taskcard) responded to the girls’ interest in this game, however, I found only
weak intertextual chains across the vast set of printed materials and online
communities that are oftentimes associated with games. In a web-based search for
tips and hints for each of these games, I found 43 search results containing 0 actual
cheats. I was also unable to find any links to associated online communities or the
existence of printed strategy guides for the *Let’s Ride* game.

It occurred to me that *Let’s Ride: Champions Collection* might be an obscure
game, so I broadened my search to include other games that had some popularity with
girls at the site: *Barbie Detective* and *Carmen San Diego*. In the case of these games I
found slightly more encouraging results with 9000 hits involving cheats for *Barbie
Detective* and 21,900 hits for *Carmen San Diego*. Although not all of these search
results are relevant, they demonstrate that there is an online presence with these games
that learning designers could presumably tap into when considering ways to shift children’s attention toward the diversity of materials they might engage with. Again, I could not find printed strategy guides (other than guides that are packaged along with the software) for either of these games. The online hits associated with *Barbie Detective* and *Carmen San Diego* were encouraging until I posed similar queries for the most popular boys’ games in the 5D: *Zoo Tycoon* and *Sim City*. I was able to find overwhelming numbers of sites for cheats and strategy guides for both series of games. The query “cheats” and “zoo tycoon” itself produces over 954,000 hits. A similar query for “cheats” and “SimCity” produces 865,000 hits.

*Games without Secrets: A Dead-End for Girls?*

There are numerous ways to explain this differentiation in the online and print publishing communities’ engagement with boys and girls games. Most importantly, I think these results indicate that boys’ games are wildly more lucrative commercially than girls’ games. Along similar lines and written about by many media scholars such as Marsha Kinder (1991) is the manner in which marketing of toys and games for children, particularly boys, relies on the power of intertextual chains to drive consumerism. One conclusion is that boys’ games and associated websites and printed strategies are just one instantiation of these intertextual chains designed to create boy consumers.

What hasn’t been addressed so closely is the relationship between play texts and literacy practices. Because I was doing intervention research I was looking for those links between toys, games, websites, books, and those literacies associated with
new information and communication technologies which would engender new practices. What I found was that those links are weaker in frequency and quality when one examines girl-oriented games and play practices. Needless to say, more needs to be done in terms of looking more closely at youth play practices (particularly toys and electronic games) to understand the relationship between intertextual chains (both consumerist and gender-scripted), literacy practices and the potentiality of engagement in competencies related to new literacies.

That computer and console games are related to print/electronic texts, online communities, and literacy practices in gendered relationships which are oftentimes unfavorable to girls’ participation in educative activities and acquisition of new literacies shouldn’t be surprising but the extent to which girls’ games were devoid of community was jarring. Although both boys’ and girls’ games had strong ties to consumer discourses and cultural scripts, boys’ games were embedded in complex social and textual networks of people and artifacts while girls’ games seemed to exist in social and textual isolation. Relationships between girls’ games, other media, and web-based communities of practice were either weak or absent. The strong representation of boys’ games in online websites and published materials was indicative of the role the games play as boundary objects between multiple communities of practice.

When boys play the same games as adult males, a whole world of online communities, strategy guides, and magazines written with complex language and information visualizations opens to them – each with the potential to build
competencies in various literacy practices. There seem to be fewer crossovers between female youth and adult gaming experiences, suggesting that relationships between youth play (in this case gaming), adult practices, and literacy (particularly new literacies) are gendered in powerful ways, constraining the value of popular video games as educational tools for girls. Although beyond the scope of the dissertation, an analysis of games and toys as boundary objects would help to articulate further the relationship between youth play practices and literacy (particularly new literacies). Such a discussion of gender, play, and literacy would be theoretically strong if placed in a historical trajectory by doing a similar analysis of older, pre-internet, games for boys and girls. Sports cards (for boys) and Barbie or easy-bake ovens (for girls) represent valuable artifacts and practices for such an analysis.

_intertextual taskcard design at polvera b&gc_

Although my discussion of electronic games might appear ancillary and at a seemingly inappropriate level of detail and consideration to the problems of design at Polvera Boys and Girls Club, these considerations of gender and associated equity of access and participation with new ICTs were very much on my mind as I embarked on the problem of informal learning design. The challenges posed by gaming contexts prompted me to look to other instantiations of youth culture that might support the design of intertextual taskcards at Polvera.

For the remainder of this chapter, I highlight 3 approaches I took in developing intertextual taskcards. First, using popular movies as gateways to understanding and building narratives, second, using holiday activities to build media literacies, and third,
using popular culture to explore languages and translation tools. Over a 10 week period, we introduced 1 or 2 new taskcards every day and for every taskcard the children completed they received a WizTicket – a raffle ticket good for a drawing at the end of the quarter. As mentioned previously, the taskcard designs incorporated Kristeva’s notion of intertextuality in that youth cultures were understood as texts that could be strategically leveraged to initiate intertextual chains of meaning towards new, educative texts and practices (see Figure 26).

Figure 26 Anatomy of an intertextual taskcard design
The intertextual taskcards that were designed for the Polvera research site took a slightly different approach to leveraging youth cultures than the personal webpage and digital storytelling activity designs at Fair Hills B&GC. Whereas the brokered activities of personal webpage design and digital storytelling were responsive to the child participants’ interests and expertise as expressed by the children as individuals, the intertextual taskcard designs attempted to anticipate what children would find engaging. My intent was to produce research that might inform efforts to design a reproducible curriculum model for informal learning environments that could be sustained in times of understaffing or in contexts where university-community links are absent.

Youth Movie Culture and Popular Films

David Buckingham suggests that production projects present students with an ideal site to develop new critical competencies because it gives children a metalanguage to challenge existing discourses (Buckingham, 2003). The New London Group’s (1996) take on design as the route by which students engage in meaning-making and social change also places productive practice at the center of a pedagogy for new ICTs. Informal learning environments, particularly those afterschool sites that enjoy flexibility in programming might use production projects as one approach to introducing children to new practices related to new ICTs.

In the “Hey Moviemakers” and the “Movie-Making for Kids” taskcards (see Figures 27 and 28) various aspects of the movie industry, video production, and narrative competency could be explored through joint activity between adult and child
participants. The personal goals of children, learning more about their own movies of interest, were used as a point of entry for opening a dialogue relating to more formal concepts and practices.

Figure 27 Intertextual Taskcard: "Hey Moviemakers!"
Anton (age 7) and Petri (age 9)

Many of the children seemed excited to engage in this activity because it allowed them to extend their knowledge about a favorite movie. In his interactions with Anton and Petri, ARP was able to use the taskcard to introduce a web-based resource that provides searchers with information about the movie industry: The Internet Movie Database (http://www.imdb.com). He engaged the children in discussions about concepts associated with movie-making such as genre and the directors who guided the production of their film. Anton and Petri were excited and
engaged with the process of looking up their favorite films: *Shaolin Soccer* and *Austin Powers: Goldmember*.

I sat between Anton and Petri who were pleased with my company. We began the taskcards. They were both a little confused at first but I told them they had to read the task more carefully. They did so and jumped online with no trouble. Anton asked me what a movie about a soccer game was called. I had absolutely no idea what he was talking about. He finally remembered the name; it was some soccer film from China. Petri chose *Austin Powers in Gold Finger*. They were then instructed to find the director’s name. They were both very smart and found the information very quickly, however they both asked a lot of questions at the same time so I felt like I was being torn in two directions. After we looked up the different genres of each film they were asked to write a story of their own. [ARP: 11/2/05]

After finding out additional information about their movie they were asked to work on a narrative. Although the kids in this interaction didn’t want to write narratives initially, ARP did a good job of negotiating with the boys to get them to think about an idea for a movie and eventually cross boundaries towards engaging in building short narratives.

They both told me that they really didn’t want to write anything right now. I told them they could make an outline or just brainstorm ideas by writing different key words. They said they didn’t want to do that either. I tried to compromise with them even more by telling them that they could draw a picture and verbally tell me a story from their picture. They both liked this idea and got started. I made sure to inform them that they had to put a good effort into their drawing and use their imagination otherwise it wouldn’t be worth it. …Somehow everything I said was working today and they both went diligently to work. Anton had the idea of some people kicking a soccer ball around the world and getting the new world record for the longest distance a soccer ball was ever kicked. I think he was a little bummed when it was Petri’s turn to tell his story and he also used the idea of a world record. I told him that it wasn’t fair to copy someone else’s idea. I offered an alternative to the world record like a competition instead. Petri liked that idea... [ARP: 11/2/05]
The idea of building a narrative that was similar to his favorite movie was appealing to Anton and Petri chose to create a similar story. With some urging by ARP, Petri added some original elements to his storyline. This case and those that follow are interesting because they provide examples where the intertextual taskcard, when mediated by interactions brokered by an engaged practicum student, helped initiate an intertextual chain and fostered broadened sets of practice among participants.

*Brody (age 9), Auggie (age 8), Dustin (age 9), & Steven (age 8)*

Another practicum student, JHK, worked with 4 children on the “Hey Moviemakers” taskcard. Like Anton and Petri, these boys were eager to explore their favorite movies. Although beginning with movies of differing titles, these boys gradually moved towards completing the taskcard as a group – selecting *Star Wars Episode III* as their chosen movie to find information about.

Brody and Dustin chose Star Wars III: Revenge of the Sith. Auggie chose the movie Fog but then quickly changed his mind to Star Wars. Steven thought about his favorite movie for a long time and then carefully chose Star Wars III Revenge of the Sith. The task card's next step was to find the director of the movie and Auggie found it quickly, it was George Lucas. [JHK: 11/2/05]

At this initial stage of the taskcard, JHK helped the students to explore the website to find the information needed. These practices of reading-off-the-screen and extracting relevant information from a database-driven, electronic resource were deepened by a more traditionally educative literacy event: exploring the concept of genre.

After finding the director of the film the next step was to find what genre this movie is categorized under. The boys didn't know what genre was so I explained to them that it means what type of movie it is considered: action, comedy, sci-fi, and etc. They seemed to understand
because they didn't ask anymore questions for the time being. They all individually found the section on the page where the genre is supposed to be written and they all quickly copied the list and asked me what the next step was. [JHK: 11/2/05]

When it came time to create their own stories, it’s not surprising that the narratives had elements similar to the favorite Star Wars scenarios. JHK was disappointed that the boys didn’t write stories with more original plotlines, instead choosing to draw on Star Wars and a favorite video game Total Annihilation.

Dustin asked what type of story it had to be and I said it was up to him, he could write what ever kind of story he wanted to. They were very excited to do this and got to it right away. After a few minutes Brody was the first to finish, he handed me his story and said that he didn't want me to read his story out loud so I ok and then read his story. It was about a plasma missile and the threat of the end of the world. I thought this was very interesting. He wrote the same exact type of genre that the Star Wars movie was: action/adventure/ fantasy/ sci-fi. Then Auggie showed me his story, he was very anxious to get his ticket, his story was based on the Star Wars movie. The main character in his story were Luke SkyWalker and the story was about the end of the empire… when Dustin gave me his paper to read and it was also very similar to Star Wars because his main character to Luke Sky Walker but the villain was the Glove of Doom. Auggie came back to me and the title of his story was Star Wars. I laughed and told him that he could go get his ticket. Steven was the last to finish and he shyly brought me his story. It was similar to Star Wars because it had Luke Skywalker as the main character and the big battle scene was fought over lava. The title he gave his movie was War 3… I was disappointed that the boys didn't get more creative with their stories. Most of the stories were based on Star Wars and Total Annihilation. I thought the kids really enjoyed today’s activity. They seemed obsessed with the movie star wars and the characters in it. I noticed that Steven would look to the other boys sometimes when he didn't know what to write about. I guessed that maybe he was a little lost and looked up to the other boys since they were 2 years older than him. That made me wonder if the boys weren't around each other and had a chance to do the same activity if they would choose to write the same violent stories or would they choose a different genre. [JHK: 11/2/05]
JHK suggests that the boys looked to each other and popular culture to develop relevant narratives rather than develop more original themes. The approach taken by the boys in developing their stories, however, is actually in agreement with Anne Haas Dyson’s experience (Dyson, 1997) of children’s narratives emerging out of popular superhero stories. Certainly the pressures of their peer partners liking Star Wars might have influenced their choice of plot but it is difficult to ascertain whether the children would have created these stories in a similar fashion if they weren’t motivated to quickly complete a taskcard which might appear (to them) as school-like. For students eager to complete the activity, the story at-hand (Star Wars) was convenient to draw and expand upon. Regardless of intent behind the plotlines, it must be recognized that the content of the taskcard, when support by JHK, created a trajectory in which a group of boys of mixed age and ability worked together to create narratives. The value of creating an informal context where children practice developing narrative competencies can’t be underestimated.

*Celia (age 7)*

Similar to the “Hey Moviemakers” taskcard, the “Movie-Making for Kids” taskcard (written by Jim Nichols and Deborah Downing-Wilson, two colleagues at LCHC – see Figure 28) asked children to visit a website designed to provide children with information about digital media, explore how movies are categorized, find out how their own favorite movie fits in with these categories, and later, to describe the elements of a movie and why they are important. The final task of this taskcard is to
refer back to the website to read some information about scriptwriting and to work with a buddy to create a storyline for a movie.

In the case of Celia, the practicum student, NKF, was able to guide one of the youngest children participating in the Fifth Dimension at Polvera through each of the tasks. At a much lower level of basic literacy competency than her older counterparts, Celia crossed boundaries first just to read the information on the taskcard as well as on the website. In a manner similar to the previous discussions of genre in the “Hey Moviemakers” taskcard, Celia and NKF engage in a discussion about categorization.

We found the task card and it told us to identify seven different categories of movies. Celia asked me what a category is and I told her it is the different types and in this case, different types of movies. I read the first description of the movie category and Celia wrote it down on her paper. Since she wrote the first category extra large, I suggested that she write smaller so that she could fit all seven categories in the limited space provided. For the second category, I made her not only read the name of the category but the entire description. She began to write the word on her paper first and then she proceeded to read the category description. As she was reading she would skim the short words quickly but as soon as she reached a word she had not yet encountered she would initiate reading the first letters of the word then would look up at me and simultaneously guess the rest of the word and look questioningly at me. I began by slowly reading the remainder of the word and she would follow in unison. As we scrolled down the list of categories, she continued to start the word, and then tried to predict the rest. I told her that she needed to stop guessing and sound out the rest of the word with me. Although the process was slow, Celia was beginning to try more and more words on her own and after reading a word she would then look up at me to see if she was right or not. If she was right I would repeat the word and if she was wrong, I would again tell her to read it with me. We continued this scaffolding method throughout the category section and after each word Celia would eagerly look at me for a response. We tried to use our fingers to follow the letters and sound them out at the same time. [NKF: 10/31/2005]
The challenges Celia faced with reading the content needed to complete the tasks seemed to be mitigated by NKF’s willingness to negotiate the workload by taking on some of the reading herself. This approach seemed to bolster Celia’s enthusiasm to continue what proved to be a difficult task for a seven year old child.

We read the different elements needed in a movie and again we took turns reading the captions. Celia was showing significantly more initiation than she was in the beginning and I would like to take the credit for helping her improve. [NKF: 10/31/2005]

This willingness to cross boundaries toward mastery of the basics of reading and to try new practices was evident as Celia and NFK move towards writing a brief plot for a movie. Like the boys in the previous 2 cases, Celia reached for a familiar, popular narrative as building blocks to develop her own plotline.

Once we had finished finding the key elements, I asked if Celia wanted to become an expert. She agreed and we flipped the paper over to begin writing a movie script. Although we were supposed to type the story, we had taken so much time reading that we had just enough time to think about a story, let alone type it and print it. I immediately asked Celia what she wanted to write about. She did not really answer me so I tried another approach by naming ideas and Celia said Sponge Bob Square Pants. I asked her to clarify what Sponge Bob would do, where would he be, who was he with, etc. She said that maybe he’d be at the beach with his friend. We worked together to write the scenes on one side and the shots on the other. Celia was writing on both sides and I tried to help her spell the words. Often she would just continue to write and I would try to slow her down when her spelling was completely off. She decided that Sponge Bob would be surfing with Patrick and then they would sleep on the beach. I kept trying to explain that we needed to have a sequential storyline but I had to prompt Celia to come up with ideas on her own. I would name a few things and she would merely agree on one of them. Our story ended up being substantially short because it was obvious that both Celia and I were both running out of energy and that we needed a break. [NKF: 10/31/2005]
Although Celia and NKF end up “running out of energy,” the interaction was exciting in that Celia engaged in developing ideas and narratives in a short amount of time. Rather than insisting that Celia come up with an “original storyline”, NKF allows her to draw up her knowledge of a popular television character (Spongebob). Undoubtedly, NKF’s permeability to the Spongebob-based narrative allowed the interaction to continue to the expert level. Importantly, both the taskcard and the broker for this interaction (NKF) accommodated Celia’s level of achievement within the activities such that the partners to move on when things appeared too complex.

It’s not surprising that both of these participants were exhausted - the tasks were quite challenging for such a young child. It might be argued that the activity stretched them too far but it seems evident that Celia was engaged with the activity and moved forward with the activity voluntarily. While it is impossible to know why Celia wanted to do this, what is evident is that she and NKF moved towards new practices associated with using web-based resources and thinking about movies with a new vocabulary. Looking through a slightly different lens, the interaction was deeply valuable for helping Celia cross boundaries toward the mastery of existing and evolving literacies – in this case reading both print materials and electronic text “off-the-screen.”

**Boundary Crossing and the Movie-Centric Taskcards**

The “Hey Moviemakers!” and “Movie-Making for Kids” taskcards got the children thinking about their favorite stories and how they would write a movie if given the chance. As in the case of Celia boundaries were crossed towards mastering
beginning reading skills. Importantly, all the children in every case engaged in new practices related to using electronic, database driven resources. Ties to school curricula were made during vocabulary-building discussions around the concepts of category and genre and through the exercise of developing fictional narratives. One final thought regarding the narrative components of these taskcards: I thought initially that time pressures might have undermined the narrative writing component but I was informed recently of how California standardized tests for fourth graders include a writing section where the students are only given a limited time to develop a narrative. It seems like an activity such as this taskcard might have more relevance that should be explored in future applications or perhaps a redesign project.

*Child-Centered Holidays and Customs*

Gunter Kress’ writing (Kress, 1999) on multimodality suggests that communication in the information age is inherently a process that involves more than just reading and writing. Students must be fluent in multiple media discourses related to verbal and non-verbal communication. In a similar manner, the new literacies approach emphasizes the importance of students gaining competencies not just in reading text but in applying strategies for reading off-the-screen, understanding images, interpreting colors, and navigating infrastructures for information retrieval (Coiro, 2003; Leu, Kinzer, Coiro, & Cammack, 2004; Sutherland-Smith, 2002).

Following this approach for the design of intertextual taskcards, the emphasis was on providing activities in which participants were exposed to a variety of resources in multiple modalities. In the “Personal Pumpkin” and “Personal Turkey”
taskcards (see Figures 29 and 30) children interacted with and manipulated images using a popular drawing program, Microsoft Paint. They learned about relationships between symbols and actions on the screen and how images can be modified electronically through the use of color, line, and text to create different visual effects.

![Welcome to the "Personal Pumpkin" Web Kids Activity Page!](http://www.webleaf.com/ed5d/pumpkin.htm)

**Welcome to the "Personal Pumpkin" Web Kids Activity Page!**

**Beginner:** Copy a picture of a pumpkin to work on.
Click or type this URL: [http://www.webleaf.com/ed5d/pumpkin_pics.htm](http://www.webleaf.com/ed5d/pumpkin_pics.htm)
in to your browser. Look at the pictures and find a pumpkin you would like to personalize. Right-click on the pumpkin and left-click on "copy."

**Good:** Paste your picture into the Paint program. Open the Paint software program by clicking on your "Start Button," then placing your cursor first over "All Programs" then "Accessories." Find "Paint" and click on it.
When "Paint" opens click first on "Edit" then on "Paste."
Good job! Your pumpkin should now be in the window.

**Expert**

**Personalize your pumpkin...**

To add color... Click on a color swatch then select the paint bucket, paint brush, or other tools to fill your pumpkin with color. TO MAKE A FACE... Try using the eraser to make shapes for the mouth, eyes, etc.
Then fill again with an interesting color.

ADD A MESSAGE... Click on the "A" on the Paint Toolbar to put text on your pumpkin.

HOW DO I UNDO SOMETHING? Try pressing these two keys together: the "Ctrl" button and the "Z" button.

SAVE AND PRINT YOUR PUMPKIN... and you are done and now an expert at personalizing fun images!

**NEw EXPERT... Congratulations! You have just earned 1 WizTicket good for a chance to win prizes at our RAFFLE in December!**

Figure 29 Intertextual Taskcard: "Personal Pumpkin"
In the “Personal Turkey” version of the taskcard, children searched the Web for additional images to modify then engaged in similar processes of modification. At the heart of these taskcards was the idea that children should begin early to understand the ways in which images can be modified electronically to convey multiple meanings. Bound up in this goal is the desire for the participants themselves to become versed in the visual literacies that allow individuals to understand graphical iconography and associated electronic tools and applications.

Figure 30 Intertextual Taskcard: "Personal Turkey"
Jackie (age 10) & Veronica (age 11)

The “Personal Pumpkin” and “Personal Turkey” taskcards were among the most engaging to both boys and girls across multiple age groups. When the “Personal Pumpkin” taskcard was introduced not only the younger elementary age children were interested in participating but two ten and eleven year olds worked on the taskcard as well. SCS was able to participate with them to complete the task (see Figure 31):

First up were two girls by the names of Jackie (5th grade) and Veronica (6th grade). We had some trouble getting on the webpage given to us at first, but we were up and going with some help from Maria. Once on the webpage, the two girls were to pick their favorite pumpkin out of three and copy + paste it into Paint. On Paint, the girls began to customize their pumpkins by digitally coloring them, and then drawing faces on them. While both girls had no trouble going through the tasks, Jackie was definitely more independent while working. Veronica, on the other hand, asked for my input on whether she should do something or not. She asked about which buttons did which and how she could make better lines. Veronica completed the task card first, possibly because she wasn’t afraid to ask for help when she needed it. [SCS: 11/1/2005]
SCS did a good job of giving the girls space to work on the task themselves, only helping out when explicitly asked. The discussions that SCS and Veronica had about the icons in Microsoft Paint and how to draw more controlled lines respond directly to the goals I had for the taskcard in that after working through it, Veronica and Jackie had crossed certain boundaries toward understanding how images can be modified and had engaged in some of these practices themselves. In addition to these practices related to visual literacy, they engaged in tasks that required the manipulation of graphical objects and electronic files. For these students close to entering or just entering middle school, moving towards mastery of working with electronic files and graphics will undoubtedly support their ongoing education.
Auggie (age 8) and Bran (age 9)

Whereas Jackie and Veronica (age ten and eleven respectively) completed the Personal Pumpkin taskcard with no difficulty, two eight and nine year old boys (working as a pair) found greater challenges in modifying a pumpkin for Halloween. From MAM’s fieldnotes, there seemed to be excitement about the project because Halloween is such a beloved holiday but the task itself wasn’t easy. First the children had to learn what the symbols in Paint mean and then manage to control them. In the fieldnote below MAM describes the children learning this process.

In the first trial Auggie selected the pumpkin in the middle of the site and then he began to experiment with the pumpkin by himself in paint bucket. Auggie had trouble like Bran in controlling the paint bucket coloring device in his pumpkin picture. Most of the time Auggie just wanted to color a certain area of the pumpkin and he would end up painting everything; Bran did the same with his picture and his paint bucket device. In one of the times that Auggie used the paint bucket I had to tell him that in order for him to not spill the paint all over the painting I told him that he need to outline the area that he wanted to the paint to stop flowing to with a different color from the paint. Auggie listened to me and he outlined the teeth of his jack-o’-lantern so the color orange would not spill into the teeth or the outer area of the pumpkin. [MAM: 10/25/05]

When MAM provided Auggie and Bran with a solution to the problem of color not staying where they intended, it was really a way of suggesting that the outlines of the image can indeed be modified. Once Auggie realized that he could add not only color, as a child would do to a coloring book, but add the lines to the object as well, he was able to move forward with the activity. Bran, on the other hand, struggled with this concept and attempted to implement a different strategy.
With Bran I tried to teach him the same technique but he seemed to not understand what I was telling him because he did not do as Auggie. Instead, Bran would get either the pencil or the brush and he would start to color piece by piece the area of his desire instead of just outlining the area with a different color and then spelling paint with the paint bucket. [MAM: 10/25/05]

The ability to think strategically about how to use the drawing software, to add components, and edit existing areas with color was challenging for Bran. His alternative solution to the problem of controlling the paint bucket tool is interesting, however, in that Bran was able to find out (in a very short period of time) that the modifiable surface area associated with other tools was precise enough to allow him to have satisfactory enough control over color to meet his goals for the pumpkin (see Figure 32). MAM’s work with Bran and Auggie supported their movement beyond a popular holiday activity for kids, a pumpkin art activity for Halloween, toward new technology-based practices associated with visual literacy. For another little girl, Celia, boundary crossing in this activity meant that she would have to gain a sense of patience with herself and the limitations of the technology to complete the project.
Celia (age 7)

Like the boys highlighted in the previous interactions, Celia was excited to make a pumpkin picture for Halloween. Celia was so excited, however, that she unfortunately didn’t respond to SR’s efforts to talk about the functionality of the drawing program.

It was apparent that Celia was anxious to start the activity. She would rock back and forth [in] her chair and would hit hard keystrokes to the keyboards without any apparent reason. I asked Celia if she could wait for me to tell them about the activity before she would start playing with the computer, but she continued making hard keystrokes to the keyboard. Then I put the task card directions in each of the girl's keyboard. That was a good remedy for Celia to calm down a little… Celia chose the pumpkin that was already colored and I helped her copy it to the paint program for her. I explained how to use the colors, paint and brushes, but it seemed she didn't really listen to me; she just wanted to do herself. I let Celia try it herself... [SR: 10/25/05]
Celia’s excitement to start the activity made it difficult for SR to help her work with the software and the associated drawing tools. After choosing a pumpkin image to modify, Celia began to get frustrated with the activity. This interaction reminded me of Jack’s experiences with the digital storytelling activities dealt with in Chapter V when he grew very agitated when confronted with the reality that the technology wasn’t always going to result in perfect video footage.

…Celia started voicing that her project was very ugly and that she didn't want it like that, I told her I would restart her project. Celia was so frustrated that she started scribbling throughout the whole project very upset. I immediately told her "It's ok, we can restart your project so it can look the way you want it." I took the mouse from her and restarted the project for her since she was quite anxious. …Celia at the other end kept on saying how much she disliked her pumpkin. She made sure she told at least three different people how much she disliked her pumpkin. I gave Celia different options to fix her pumpkin but no options were satisfying her. I asked her if she wanted to restart her project and she agreed. Once again she started her project. This time Celia was being very careful about customizing her pumpkin. …It took approximately five more minutes for Celia to finish her project and was finally satisfied with her project. I helped her print her project and she left with great satisfaction. [SR: 10/25/05]

It was interesting how the Personal Pumpkin taskcard could be so attractive and engaging to the children yet at the same time present great challenges. The interactions between Celia and SR really made visible the sense of conflict and contradiction individuals can experience when they take up new practices that require new competencies – particularly those practices associated with new technologies and electronic tools. SR was successful in this interaction in that she helped Celia to move beyond her initial anxiety about the activity by calmly supporting her efforts to first fix and then finally to restart the project. Although the activity stretched Celia’s
abilities and confidence she was able to use the drawing software to modify an image to print and take home.

*Boundary Crossing and Holiday-Oriented Taskcards*

The nearly identical Personal Turkey and Personal Pumpkin taskcards presented the children with a similar chain of activity but engaged them in an image search for a picture of a turkey rather than giving them the image to modify. The permeability to youth culture and the excitement surrounding popular holidays, kept children motivated to begin the activity. One participant, SCS remarked that the idea of customization was attractive to the children.

The Personal Turkey project was relatively easy, and most children had no difficulty in completing it. I believe the idea of being able to customize something is pleasing to the children. Any of them would deliberately change pictures if they saw that someone else had similar or same pictures. [SCS: 11/15/05]

Perhaps the excitement about the impending arrival of Halloween is one reason that children such as Bran and Celia who experienced great challenges in completing the taskcard were still motivated to pursue the activity to its finish. In addition to engagement with Halloween and the Thanksgiving holiday, the children highlighted in the above cases seemed to benefit from the feedback they received from the practicum students that brokered interactions with the taskcards. Boundary crossing toward new practices in the cases of Jackie, Veronica, Auggie, Bran, and Celia was supported by patient brokers who ascertained very quickly, in the moment really, what approach to take with the children to introduce new practices while maintaining the children’s
interest. Devotion, on the part of the children, to the practicum students might also explain instances of great perseverance, particularly in the case of Celia.

*Tools for Exploring Lifeworlds: Translation Tasks*

Work by the New London Group (2000) and critical researchers such as Barbara Comber (2002) emphasizes the importance of placing students in learning contexts where they may explore other lifeworlds so that they can function in an increasingly networked and multi-cultural world. Along similar lines, James Gee (2003) suggests that popular narratives found in video games have the potential to expose students to other ways of being, possibly increasing their understanding of marginalized groups and historical events.

For informal learning environments with multiple, related sites, (such as the Fifth Dimension), researchers might think of ways to engage participants in global networks and the exploration of languages. This may be accomplished by designing multilingual print activities and via practices related to electronic bulletin boards, networked gaming, web design, or video production and exchange. Olga Vasquez, through her work with La Clase Mágica (2003) has developed a multilingual approach to designing activities such that children and adults of different language competencies must work together to understand the structure and goals of an activity which has been presented in a mixture of English and Spanish. These virtual activities linking students in disparate places serve dual purposes: on the one hand, they expose children to diverse languages/cultures and, on the other, engage them in activities which require fluency and competency with various technologies.
In the “Spongebob Music Lyrics” taskcard below (Figure 31), children copied and pasted the lyrics to the Spongebob theme song into Babel Fish for translation into another language. My goal was to support understandings of their own language competencies and possibly engage with some new words in a different language.

| BEGINNER | FIND THE LYRICS TO SPONGEBOB'S THEME SONG... Type or click on this URL: http://www.webleaf.com/505d/spongebob.htm |
| GOOD | TRANSLATE SPONGEBOB'S SONG: Type or click on this URL: http://babelfish.altavista.com/ Place your cursor in the box that looks like the one that appears below. | **Figure 33 Intertextual Taskcard: "Spongebob Song Lyrics"**
| EXPERT | PRINT OUT YOUR TRANSLATION... by clicking on "FILE" >> "PRINT PREVIEW" Select "ALL FRAMES INDIVIDUALLY" from the pull-down menu and click on "PRINT". If you want to print out the original lyrics to Spongebob's Theme Song or pick a new set of lyrics to translate you may do this as well. |
| | HEY EXPERT... Congratulations! You have just earned 1 WizTicket good for a chance to win prizes at our RAFFLE in December! |
The "Spongebob Song Lyrics" taskcard proved to be an engaging taskcard for many of the children. Spongebob Squarepants is a beloved cartoon character on the Nickelodeon children’s cable channel. The theme song has a very distinctive tune but the words are hard to distinguish. ARP and ESL describe in the fieldnotes two children: Tina and Anton, a boy with skills in multiple languages.

I started talking to Anton, a 7-year-old boy who started to read his Spanish translation to me. I was impressed with his accent and when I asked him about it he informed that his first language was Hebrew, then Spanish and then English. [ARP: 10/26/2005]

For Tina, engagement was high in this task to work with a familiar undergraduate buddy and for Anton, the activity provided an opportunity to demonstrate and extend his already strong abilities in various languages.

As I walked over to the room I noticed Tina was standing in line for the Tech Lab. I asked her if she was going to be my partner that day and she said yes. The children were let into the room first and when I walked in I saw Tina waiting for me at one of the computers. I grabbed a task card and walked over and immediately we began reading the instructions. However, the little boy next to Tina did not have an undergraduate partner so I decided to help both Tina and him. His name was Anton and he knows how to speak four different languages. The task card was pretty self explanatory and both Tina and Anton seemed interested in the task. They had to translate the Sponge Bob theme song and though both did not know the song very well, we all had fun translating it into different languages. [ESL: 10/26/2005]

References to Tina’s age could only be found in relation to other children.
In her fieldnote, ESL described the activity as unfolding as a joint effort with high engagement on the part of all involved. Following Vasquez’ notion of a “recognition perspective,” this activity supported the creation of a context where a child with a multi-lingual and multi-ethnic background (Anton) was able to have his expertise both validated and extended by introducing to him a set of electronic infrastructures of information that are designed specifically for translation. Tina also enthusiastically embraced trying out this technology. For her, the activity introduced new practices and associated technologies of language translation in a fun way. Although Tina and Anton seemed to immediately understand what “to translate” meant, in the case of Jed, the concept was new.

**Jed (2nd grade)**

Just knowing that translation software exists (and can be accessed for free) is a powerful idea. The children’s differing levels of understanding of what translation software does was interesting to observe. In Jed’s case, he didn’t understand until working with his UCSD buddy that the Spongebob song was in English and that the song could be translated into another language. In this way, the taskcard-as-activity seems quite powerful for increasing metalinguistic awareness. His partner, Manuel, even convinced him to say a few of the words in Spanish.

Once Jed pasted the lyrics I told him how he could translate it into a different language. In the site there was a button with about 50 forms to translate a song into another language. The forms either consisted in translating a song for instances in English to Spanish, or Spanish to English, or English to Japanese, etc. In the case of the Sponge Bob song it would be better to select a translation from English into another language desire because the song was initially in English but Jed did not do this by himself. Jed did not show any caution in his selection
and he just wanted to select any language from the scroll button. In the first time he almost selected translating the song from French to Japanese when even do his song was in English. I pointed out to Jed that he needed to translate from English into another language. Jed finally selected English to Spanish and I asked him if he knew Spanish and he told me no. I asked Jed if he wanted me to sing for him the song of sponge bob as it appear in Spanish and he told me yes. I then tried making Jed sing after me but he would not do it but what he did do was say Spanish words in the song after me. After finally translating the song, Jed saved the song and printed it out and he completed the day’s activity. [MAM: 10/26/05]

As the reader can see, MAM describes how Jed, a second grader, worked through the process of translating a popular television show’s theme song in to another language. At the beginning of the interaction, Jed interacted with the website in a haphazard manner, randomly pulling down menus. MAM (a bilingual practicum student) recognized that Jed lacked not only a fundamental understanding of the functionality of the website but of the idea of translation. MAM briefly presented the concept of knowing and speaking other languages before proceeding with the rest of the taskcard. Once Jed understood the idea that the software could modify the song (a song in English) so that it appeared in another language, he had no problem completing the task. Interestingly, Jed was also willing to repeat his partners’ Spanish presentation of the song in translation, crossing boundaries beyond the initial realm of concept, this time toward new technological and linguistic practices.

*Petri (age 9)*

Although many of the children had no experience with languages besides English or cultures beyond suburban America, some of the children had a great knowledge of languages and differing lifeworlds due to their own family
circumstances. For example, Petri had lived in Japan for part of his life so he tried to see if the software could translate the song from English to Japanese.

I gave a handout to Petri and then he began to read it to me. Petri was not at all slow to respond to the instruction of the handout. He quickly began to enter the web address where he had to download the copy of the song. Petri had no difficulty at copying the song and then pasting in the second site where he was to paste it to get the translation. Then I had him scroll through the translation button and he chose to translate it to Japanese. Petri, however, took more time to decide a translation. He took some time to look over the selections of translation before finally choosing English to Japanese. In this way he was different to Jed who just wanted to randomly select any translation available in front of his computer and he was also different from Jake who immediately chose a selection that got his attention. After selecting English to Japanese I asked him why he had chosen to select English to Japanese and he told me that he had once lived in Japan. I asked him if he was part Japanese because his racial background seemed of Caucasian-Asian mix but he told me no. Petri told me that he had once lived in Japan because his father was in the military. After completing the translation Petri saved his copy and then printed the song. [MAM: 10/26/05]

Like Anton, Petri was able to use the taskcard as a jumping off point to connect with a prior knowledge of languages and cultures. It seems that this combination of a popular television character, when combined with permeability to the expertise that children brought to the interaction supported Petri’s uptake of new practices related to working with electronic text and online translation software.

**Boundary Crossing in the Taskcards with Translation Activities**

The “Translate Spongebob’s Music Lyrics” intertextual taskcard attempted to use a popular children’s television character as a gateway to exposing participants to online translation tools such as BabelFish.com. The light, fun, characteristics of this taskcard supported Anton and Tina’s experimentation with translating the
Spongebob theme song into several different languages with the help of the practicum student with whom they were working. In this way, these participants tried out the type of software they might have otherwise not had an occasion to work with. While boundary crossing towards taking these new practices was at the forefront for all these children, for seven year old Jed, a fundamental discussion of the concept of translation occurred. Jed’s move towards imagining how a popular song could be sung or spoken in another language represented a different type of crossing over – one related more to the ongoing processes of developing metalinguistic competency. The individualized aspects of boundary crossing, even when working through identical activity sets, emerged again and again. In the case of Petri, his early experiences living in Japan were brought to the interaction such that he could explore current and previous experiences with language. Importantly, although the “Spongebob” taskcard attempted to anticipate what would engage children in the task, youth popular culture, in fact this approach was incomplete as each child had private reasons for participating and negotiating the tasks for their own “crossings over.”

*Appropriating New Practices; Working toward Mastery*

Unlike the web design and digital storytelling projects which took place over a number of weeks and months at the Fair Hills Boys and Girls Club, the brokered intertextual taskcard designs at Polvera took place in one hour blocks of time. The interactions emerged within the short time span of an afternoon so when I looked for boundary crossing among participants, it had to be on a smaller scale. The most obvious type of boundary crossing occurred as undergraduates supported children who
struggled with reading or manipulating the computer as was the case with Celia. All of the children learned to use web-based resources, manipulate electronic files, and read electronic text off-the-screen. For most of the children, interacting with new information and communication technologies represented instances where they appropriated new practices.

Along slightly different lines, the intertextual taskcards often place children in contexts where they were asked to build upon existing competencies. In some instances children crossed boundaries with their partners when they engaged in discussions around new concepts and vocabulary. Jed learned what it means to translate a song – not an obvious thing for a grade-schooler and other children engaged in discussions about their favorite movies and what genres they belong to. These discussions were the most school-like of the activities in that they addressed specific standards in the California curriculum. Taskcards often asked children to read educative texts, to expand scholarly vocabularies, and to further develop narrative competencies through writing and speaking activities. In this way, the taskcards supported boundary crossing in children working towards mastery of basic literacies.
CHAPTER VII

CONCLUSION

This dissertation set out to engage in the mitigation of accumulating disadvantage associated with the digital divide by designing contexts that have the potential to extend participants’ repertoires of practice such that their potentiality for social action would expand in new and exciting ways. I hoped to design interventions that would support transformative practice, activities that could extend children’s competencies in practices related to new information and communication technologies (ICTs), while being responsive to the knowledge and expertise children bring to interactions.

With these primary goals in mind, I drew on recent critical research in the field of literacy. This work, exemplified by the multiliterations, new literacies, and popular literacies approaches, supported and informed my articulation of a Critical Multiliteracies (CritMLs) framework for informal learning design. Using Fifth Dimension (5D) afterschool programs as laboratories for intervention design, I implemented CritMLs-informed activities to explore the extent to which youth cultures and literacies can be used as textual gateways to more educative practices associated with the Age of Information. Research in boundary crossing provided a theoretically guided approach to assessing the impact of designs on participants.

The findings as instantiated in the cases I highlight in Chapters IV, V, and VI demonstrate that youth cultures could be strategically leveraged as gateways to engagement in new practices associated with new information and communications.
technologies (see Table 5 for a summary of cases). Powerful sources of youth expertise flowed from the children’s experiences with the artifacts and narratives found in gaming, play, holidays, popular culture, as well as from youth cultures of peer solidarity, performance, and resistance to sources of adult authority. Boundary crossing represented a useful unit of analysis for articulating children’s uptake of new practices and movement toward mastery of existing competencies. Instances of boundary crossing occurred over long time spans, as was the case in the web page design and digital storytelling projects, or in short interactions between Fifth Dimension participants, as was seen in the intertextual taskcard-based activities.

It is important to note that while youth cultures were powerful and relevant components of learning design there were limitations to their utility due to their location in gendered ecologies that limit the existence of relationships between play practices and adult forms of expertise. Along similar lines, boundary crossing (as a unit of analysis for assessing the impact of intervention) was characterized by its own set of limitations and constraints related to its ability to afford researcher’s observations of individual experience over relatively extended periods of time. In the sections that follow, I return to two guiding questions which framed the dissertation work and discuss in greater detail how my findings address these initial queries and expand on the limitations of each approach. I then discuss how the findings might serve as a gateway to future research.
### Table 5 Summary of Cases

<table>
<thead>
<tr>
<th>Case</th>
<th>Forms of Youth Expertise</th>
<th>New Practices</th>
</tr>
</thead>
<tbody>
<tr>
<td>Xbox Gaming Group</td>
<td>Youth Popular Culture (Gaming)</td>
<td>Reading</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Writing</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Searching the Web</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Critical Thinking</td>
</tr>
<tr>
<td>Web Design Group - Fair Hills B&amp;GC</td>
<td>Youth Popular Culture (Gaming)</td>
<td>Reading</td>
</tr>
<tr>
<td></td>
<td>Performance</td>
<td>Writing</td>
</tr>
<tr>
<td></td>
<td>Resistance</td>
<td>Searching the Web</td>
</tr>
<tr>
<td></td>
<td>Peer Solidarity</td>
<td>Critical Thinking</td>
</tr>
<tr>
<td></td>
<td>Humor</td>
<td>Manipulation of Files</td>
</tr>
<tr>
<td>Digital Storytelling Group- Fair Hills B&amp;GC</td>
<td>Performance</td>
<td>Narrative Competency</td>
</tr>
<tr>
<td></td>
<td>Resistance</td>
<td>Digital Photography</td>
</tr>
<tr>
<td></td>
<td>Local Culture</td>
<td>Collaboration</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Video Production</td>
</tr>
<tr>
<td>Movie Taskcard Group - Polvera B&amp;GC</td>
<td>Youth Popular Culture (Movies)</td>
<td>Narrative Competency</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Searching the Web</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Manipulating Electronic Files</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Vocabulary</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Reading off the screen</td>
</tr>
<tr>
<td>Holiday Taskcard Group - Polvera B&amp;GC</td>
<td>Events and Holidays</td>
<td>Visual iconography.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Manipulation of images.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Manipulation of files.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Reading off the screen</td>
</tr>
<tr>
<td>Language Translation Taskcard Group - Polvera B&amp;GC</td>
<td>Youth Popular Culture (Television Characters)</td>
<td>Exploring languages.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Using online translators.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Manipulating online text.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Reading off the screen</td>
</tr>
</tbody>
</table>

**Limits of Popular Culture as Gateways to Literacy Events**

Question one of the dissertation poses the following query:

1. To what extent and in what manner can youth culture be used to inform the design of literacy events to support children’s interactions and development of competencies related to new ICTs?
I responded to question one by developing a series of activities and contexts at 3 research sites that attempted to leverage popular youth culture as a way of engaging children in educative practices. Via intertextual chains embedded in specially designed activities, it was possible to use existing youth expertise to support “crossings over” toward many educative practices, yet there were limits to this approach. Specifically, certain forms of popular culture, namely video games, were less effective gateways to educative activities for girls than for boys. It was especially difficult to achieve equal participation among boys and girls when activities were located in heavily gendered spaces such as computer labs. In the sections that follow I expand on how these issues problematize findings described in the dissertation while creating space for new directions in research.

*Gendered Ecologies of Electronic Cultures*

This research suggests that while girls’ participation in activities related to new ICTs was greater in the digital storytelling and intertextual taskcard activities, there remains much work to be done to get girls involved in the production of electronic narratives and other critical multiliteracies. As I mentioned in Chapter V, the existence of texts and online communities which act as boundary objects for both men and boys (particularly those related to gaming) seemed to support boys in their movement to adult-sanctioned literacies associated new ICTs. These findings further suggest the use of popular play cultures as gateways to learning literacies related to new ICTs is limiting for girls in a way it’s not for boys.
Although strides were made to design curricula with even greater responsiveness to the girls’ cultures, I can see that my colleagues and I were facing the not only the challenge of designing engaging activities but difficulties of gendered space in the computer labs with which we worked. Practicum students noticed at Polvera the way in which boys dominated the computer lab during non-Fifth Dimension times.

Free play commenced after the Google Earth activity. I was excited, as it was a perfect opportunity for me to observe the children in action. I immediately noticed a few things. Firstly, the majority of the kids in the room were male. Secondly, the males were playing computer games or watching flash movies that involved some sort of fighting or destruction while most of the girls stuck with surfing the web or playing gentler games… [SCS: 10/27/2005]

Bringing this issue to the forefront makes visible the limits of any curriculum model that does not deal effectively with the broader cultural context. Attention was certainly paid to creating a space that promoted gender equity (e.g., through efforts to ensure equal numbers of boys and girls working on a given activity) but it seems that the residue of gendered constraint was always playing in the background. Jenson, de Castell, and Bryson (2003) describe a similar situation in their research working towards developing a technology training program for girls in a Canadian school. After participating in the project the girls were asked how girls might be encouraged to pursue technology-based coursework.

…most responded to the question of how to encourage more girls to take computer courses in high school by suggesting that girls’ choices are often mediated by whether or not they feel comfortable, supported, or self-reliant on the computers enough to choose to take those courses. In other words, they acknowledged that for girls, it is not just a matter
of “choosing;” that choice for them was arbitrated by social factors like whether or not they perceived the “climate” of the computer lab or classes as being dominated by boys and by the presence of friends. (Jenson, de Castell, & Bryson, 2003, 567)

In the Jenson, de Castell, and Bryson work, researchers pulled female elementary-aged students and faculty out of class for early access to technology training. These participants were enlisted as training instructors for their peers. Although this strategy was successful in that the female students began to acknowledge and speak out against constraining, gendered forces in their school and to think critically about them, Jenson and her colleagues were quick to point out that anti-feminist forces and discourses of the status quo often undermined their efforts. In this work and my own research, the limits of the curriculum were found at points of intersection and social contradiction with the culture of the hosting organization.

Limits of Boundary Crossing as a Unit of Assessment

Question two of the dissertation addresses the problem of assessment in informal learning environments:

2. How can researchers concerned with infusing voluntary, informal learning environments with educative, technology-rich activities assess the impact of intervention designs?

To address question two, I turned to research in boundary crossing (for a more complete discussion, refer by to Chapter III). Richard Edwards, in a 2005 conference presentation argued that “identifying and designing boundary objects that enable a change of horizons in learning may therefore enable the border crossing from one domain to another and support learning.” Edward’s idea of “border crossing” or
“boundary crossing” as it appears in the work of Star (1989), Tuomi-Gröhn & Engeström (2003), and others informed my own approach which used boundary crossing as a unit of analysis to assess the impact of activity design. It is in this same spirit that I ventured to design a set of activities that would act as boundary objects to support children’s participation in new practices associated with new information and communication technologies (ICTs).

As demonstrated by the cases in the personal webpage design group, the digital storytelling workgroup, and those children who worked on intertextual taskcards, boundary crossing did, in fact occur resulting in participation in new practices and movement towards mastery in existing competencies. Engagement and sustainable participation in these practices was observed over long periods of time, as was the case in personal web design and digital storytelling, or seen during brief, one hour time frames of interaction, as was the case with the intertextual taskcard activities. This differentiation in patterns of boundary crossing was also seen in the way that changes in participation were tied inextricably to the trajectories of individual biographies and experience. Each of these aspects warrants greater examination as affording and constraining characteristics of boundary crossing as a lens for analyzing the relevance of programming, regardless of the theoretical underpinnings guiding it.

Individual Experience

The digital storytelling and personal web design projects were activities that were responsive to the expressed interests of individual participants. By contrast, the intertextual taskcard designs attempted to anticipate what would engage the interest of
participants. Yet, no matter what the intervention, the boundary crossing that occurred was individualized in nature. For example, participants who worked with the “Personal Pumpkin” intertextual taskcard crossed diverse boundaries encompassing basic literacies related to reading mastery, visual literacies related to interpreting graphical iconography, and computer literacies related to manipulating files. Yet, because no two individuals had the same learning experiences, it would be very difficult to make generalized claims about learning outcomes of the group. For the purposes of assessing the relevance of programming in informal contexts, however, there must be a focus on addressing the achievement of individual children. Boundary crossing as a unit of analysis works well to accomplish these goals.

The differences in time span of boundary crossing across contexts and individuals highlights the way in which its use as a unit analysis may or may not be a useful concept if periods of observation are brief. The focus on individual experiences of boundary crossing places individual transformation at the forefront rather than learning of children as compared to a group of peers. For example, Jack’s experience crossing boundaries toward using video technologies as tools rather than toys would have been missed if researchers only had 10 weeks of interaction with him. For this reason, if the goal is to assess the relevance of an intervention, then the timeframe of observations will need to both flexible and extensive. As a unit of analysis, boundary crossing provides the richest data when participants are observed over long periods of time. By contrast, if observations must be made in short, constrained time spans, boundary crossing units of analysis might provide partial or incomplete findings.
Considerations for Future Research

In the sections that follow, I present two areas of future research that emerged from my reflections on the implications of the dissertation and my understanding of its placement in various theoretical conversations. First, I discuss the findings that emerged about the gendered information infrastructures associated with electronic gaming. In this section, I call for a new line of research that attempts to mitigate disadvantage as located in the relationship between play contexts, related texts, and communities of adult practice. Next, I describe my experiences volunteering in a school library and tie this to the design of informal curriculum models. I attempt in this final section to describe a possible route toward reconciling contradictions between curricular standards, community needs, and educational bureaucracies.

Gendered Information Infrastructures of Gaming

The challenge of gendered participation in activities related to electronic gaming was confronted through iterative design and redesign. In Chapter III, I describe pilot research at Horizon School in which boys’ repertoires of practice could be successfully extended by using electronic games (in connection with their relationships to popular texts and play practices) as contextual gateways to voluntary engagement in activities associated with new literacies (e.g., writing, searching the web, manipulating electronic documents, interacting with complex supporting materials, and sharing information via personal websites). Although girls enjoyed playing some of the same video games that boys did, the strength of their attachment to so-called “gender-neutral” games wasn’t as strong as the ties formed by boys. As a
result, participation by girls was lower in many game-driven interventions. In Chapter VI, I mentioned how intertextual chain and boundary object analysis of electronic gaming practices and texts made visible one mechanism by which gendered digital divides can emerge and be sustained across contexts. I argued that when boys play the same games as adult males, a whole world of online communities, strategy guides, and magazines written with complex language and information visualizations opens to them – each with the potential to build competencies in various literacy practices when used by youth participants.

Unfortunately, there seem to be fewer crossovers between female youth and adult gaming experiences, suggesting that relationships between youth play (in this case gaming), adult practices, and literacy (particularly new literacies) are gendered in powerful ways, constraining the value of popular video games as educational tools. Keeping these challenges in mind, it may be asked whether such relationships might be generalized across additional play practices, literacies, and gender. Can we locate similar examples in a related historical trajectory? The example of a classic toy such as baseball cards also had (and continues to have) strong relationships to adult male practices with ties to understanding statistics and a complex classification system designed to sort bodies and athletic performance. Perhaps girls crafting activities, sewing, cooking (e.g., Easy-Bake Ovens), fashion-oriented toys (e.g., Barbie dolls), or jewelry-making kits would have some ties to adult female practices yet their relationship to literacies is different than those literacies afforded by access to male-centric play practices.
If the potentialities for social action are in this way diminished for girls, what can designers do to mitigate this disadvantage? I suggest that greater attention must be paid to exploring the links between female adult practices, particularly recreational activities with links to technology. Perhaps designers can create literacy events and contexts (both virtual and in the “dirt world”) to bridge these gaps. I can envision activity designs with links to online communities organized by women and supported with print materials written at adult levels of print literacy. Using what male technology-oriented industries and communities or practice have provided for boys as a model (to be improved upon), these multimodal curricula would provide girls with activities that are hardly “dead-ends.”

One possible link might lie in social virtual worlds such as *Second Life.* Elisabeth Hayes (2006) describes *Second Life* as:

“a 3D online persistent space totally created and evolved by its users. Within this vast and rapidly expanding place, you can do, create or become just about anything you can imagine” (http://secondlife.com/whatis/). Individuals create avatars to represent themselves in the SL world, and can explore a vast range of virtual places, create objects ranging from clothing to buildings, establish businesses to sell goods or services, form relationships with other players, and buy virtual property. As of March 2006, SL had over 150,000 subscribers from more than 50 countries; women account for about 27% of the total registered population, and the average age is around 32, with a range from 18 – 72. (Hayes, 2006, 154)

The relatively high interest (on the part of women) in *Second Life* suggests this might present a potential avenue of research to support girls’ use of technology. *The Sims,* another video game enjoyed by women and girls (Brunner, Bennett, & Honey, 1999)
would also seem to represent an activity that could link girls’ interests with technological literacies. One challenge posed by adopting these types of virtual environments for use by children in informal learning environments, however, is the anxiety many adults and game designers feel about children’s participation in games or online contexts that involve sexualized themes or the potential for real-time interaction with adults (via chat features). With these issues in mind, research seeking to move towards incorporating these technologies would need to somehow mitigate these constraints, either through modifications to existing software or via cooperation with designers to create segregated virtual spaces for use by youth participants.

*CritMLs: Moving In and Beyond School Hours*

The focus of the dissertation has been on informal learning environments and what concepts/principles the CritMLs frameworks can contribute to improve their design. In addition to my research with the Fifth Dimension, I have volunteered part-time as a library assistant at a local elementary school. I have observed that at the same time schools have increasingly become sites where curricula are scripted and restricted to the most basic of literacies, school libraries have become de-professionalized. Elementary school librarians, particularly in California, are now hired without teaching credentials as cash-strapped districts attempt to save money. The implication of this has been that these librarians (although they have master’s degrees) are not credentialed to teach. Thus, research and information literacy instruction cannot take place in most California elementary schools unless classroom teachers have interest and time to pursue these competencies.
Budget cuts in California education are well-known, art instruction being another example of a content area that has suffered from eliminations of funding and staff. The situation with instruction in art, however, is quite different from that of information and media literacy instruction. In the Poway Unified School District, the Parent-Teacher-Association had adopted a program called ArtCorps. This all-inclusive program trains parent volunteers to enter the classroom and teach the fundamentals of art education over the course of the academic year for every grade level.

Since 1990 the ART CORPSTM Program has been taught at several San Diego area schools. Our fine arts curriculum for grades K-8 teaches children the fundamentals of art. Step by step illustrated instruction manuals are provided for each grade level and parent-volunteers receive on site training. In addition, a comprehensive administration manual provides everything needed to implement the program. (Art Corps San Diego, 2007)

There exists no lack of school and community-based librarians qualified to support practices related to helping young people develop competencies in ICTs, yet multiliteracies instruction in the schools is virtually non-existent. In response to these issues, I suggest that since Critical Multiliteracies (CritMLs) is unlikely to emerge as a key component in curriculum standards, instruction for CritMLs must emerge as an informal element of the overall educational structure (both during and out-of-school hours). Art Corps provides one successful model of the way in which communities have enacted informal instruction in content areas that are, for whatever reason, not valued at the local school level. I hope the dissertation research contributes to discussions of how such informal approaches to curriculum design might inform those
concerned with developing working curriculum models for instruction related to new ICTs.

**Some Closing Thoughts**

I feel more certain than ever that community information centers, afterschool programs, and libraries are ideally situated to pave the way toward creating hybrid spaces and programming inhabited by educative as well as popular discourses and forms of expertise. Through my program of study, I found that it may be possible to generalize certain aspects of the role popular youth culture might play in developing meaningful and transformative programming for children participating in informal learning contexts. I conclude that more research needs to be done to more fully develop a field of research which concerns itself with multiliteracies and related instruction projects. I hope I’ve deepened discussions about how research in boundary crossing might inform efforts to assess the relevance of intervention design for youth participants.

The opportunity I’ve had to design interventions across multiple contexts provided me with a unique perspective. It seems evident that research and theorizing must urgently engage in the design of rich informal contexts rather than placing remedial emphasis on particular skills (as is often the case in public schools). One of the greatest challenges involving new ICTs involves devising a way to undermine the amplification/accumulation of advantage so long associated with the infrastructures of information. Researchers with these core concerns need to develop activities which not only provide access to community-members but challenge our participants to
imagine and re-imagine the technologies, themselves, and their role in society in new ways. These critical contexts for interaction will support their engagement in discourses to secure their own success as well the desire to protect futures for all. I hope this document contributes to this vision.
REFERENCES


Nature and Consequences of Reading and Writing (pp. 50-72). Cambridge, UK: Cambridge University Press.


