8-2018

Microworld Writing: Making Spaces for Collaboration, Construction, Creativity, and Community in the Composition Classroom

Daniel Frank
Clemson University, dmifrank@gmail.com

Follow this and additional works at: https://tigerprints.clemson.edu/all_dissertations

MICROWORLD WRITING: MAKING SPACES FOR COLLABORATION,

CONSTRUCTION, CREATVITY, AND COMMUNITY

IN THE COMPOSITION CLASSROOM

_____

A Dissertation

Presented to

the Graduate School of

Clemson University

_____

In Partial Fulfillment

of the Requirements for the Degree

Doctor of Philosophy

Rhetorics, Communication, and Information Design

_____

by

Daniel Frank

August 2018

_____

Accepted by:

Cynthia Haynes, Committee Chair

Jan Holmevik

Danielle Herro

Brian Malloy

Abstract

In order to create a 21st century pedagogy of learning experiences that inspire the engaged, constructive, dynamic, and empowering modes of work we see in online creative communities, we need to focus on the platforms, the environments, the *microworlds* that host, hold, and constitute the work. A good platform can build connections between users, allowing for the creation of a community, giving creative work an engaged and active audience. These platforms will work together to build networks of rhetorical/creative possibilities, wherein students can learn to cultivate their voices, skills, and knowledge bases as they engage across platforms and genres. I call on others to make, mod, or hack other new platforms. In applying this argument to my subject, teaching writing in a college composition class, I describe "Microworld Writing" as a genre that combines literary language practice with creativity, performativity, play, game mechanics, and coding. The MOO can be an example of one of these platforms and of microworld writing, in that it allows for creativity, user agency, and programmability, if it can be updated to have the needed features (virtual world, community, accessibility, narrativity, compatibility and exportability). I offer the concept of this "MOO-IF" as inspiration for a collaborative, community-oriented Interactive Fiction platform, and encourage people to extend, find, and build their own platforms. Until then and in addition, students can be brought into Microworld Writing in the composition classroom through interactive-fiction platforms, as part of an ecology of genre experimentation and platform exercise.

Acknowledgements

My love, admiration, and thanks:

To Cynthia Haynes, who was always there, always supportive, who made the impossible possible.

To my committee, Jan Holmevik, Dani Herro, and Brian Malloy, who knew when to guide, and when to push.

To my cohort, Nathan Riggs, Eda Özyeşilpınar, Sam Fuller, Josh Woods, and Firasat Jabeen, who fascinated me, who grew alongside me, who challenged and questioned and shared, who made me think critically about the things I always knew I wanted to say.

To my dear friends in RCID, to those of them who saw me, who would be at my side, who I knew would catch me if I fell, always, without hesitation: Victoria Houser, Mari Ramler, April O'Brien, Chris Stuart, Eric Stephens, and Stephen Quigley.

And to my family, who believed in me with the kind of certainty you reserve only for the sun rising in the East.

TABLE OF CONTENTS

Table of Contents (Continued)　　　　　　　　　　　　　　　　　　　　Page

List of Figures

CHAPTER ONE: ANSWERING THE CALL

WRITING THROUGH HISTORY

This work is about writing. I talk about many other things, here: I tease out threads from a span of conversations; I dip from timelines and conversations of compositional theory, cognitive and learning theories, hypertext, connected learning, and games studies, but at the beginning and end, this is all about writing. I'm going to show how all of these conversations can help us approach writing in the classroom in a pedagogy built to engage our students as they create environments of playful, reflexive, responsive text. Put another way, I take conversations we are having right now about technology and pedagogy and, turning back to experiments and theories about digital writing that flourished in the '90s, I argue that these current ideas can still be informed by the conversations of old, especially when we think of it this way: If we want to teach our students writing, we have to have our students write. Text-based digital environments, then, come to mind as a way to combine these discourses, to promote creativity, virtuality, digitality, and, yes, writing.

But is writing even still necessary to teach in an increasingly multimodal, digital environment? The answer, of course, is yes: As new technologies, genres, and modalities rise and bring about new paradigms of literacy, as they open up new ways to think rhetorically, the importance of writing still thrives at the root. Writing, it is argued, is, with perhaps the exception of fire, "the most important technology in the history of the human species" (Powell 31). Barry

Powell finds that writing is power, is the engine of our progress, the determiner between the movements of cultures through history: "Human groups who possess writing triumph over those who do not, without exception and swiftly" (31). Steven Fischer points out that while writing has not been the *sole* determiner of progress through human history, it has served as "society's chief tool, with written language at the haft" (Fischer 295), but only when it was distributed; in the societies where only the most rich and powerful were in command of literacy, the impact of writing had little to do with the advancement of society. But, in "societies in which literacy is wide-spread, however, writing's impact is profound" (298); writing "preserves spoken language; it levels, standardizes, prescribes, enriches and generates many other language-oriented processes with far-reaching social implications . . . The acquisition of literacy has become, at least among humankind's privileged, second in importance only to the possession of language itself" (ibid.). Considering writing's tremendous influence on our society, it comes then as no surprise that shifts in technology which change the means and modes of writing carry with them profound impact on our development.

Johannes Gutenberg's printing press ushered in two simple inventions: "replicacasting, which created a 'matrix' of a letter in reverse, into which molten lead could be poured to produce any number of copies of the same size and height; and an ink that would adhere to metal types" (Fischer 271). These two innovations themselves held an impact on the next centuries; Fischer notes that the materiality of printing ushered by these two innovations would not change for "more than three centuries" from Gutenberg's time (ibid). With a suddenly much more efficient and accessible form of print, the resulting spread of literacy ushered in the modern age:

'It can be safely said,' historian Albertine Gaur has asserted, that the two
decades Gutenberg spent on the perfection of typography signaled the
start of the modern period and that all subsequent scientific, political,
ecclesiastical, sociological, economic and philosophical advances would
not have been possible without the use and the influence of the printing
press. (Fischer 272)

But these changes are due to more than distributed literacy: the changes in technology allowed
for new ways of thinking about the text: the new spaces created by this technology lead to new
ideas, new genres, and ways that language can work. Fischer writes as much: "It is not these
phenomena themselves so much as our new understanding of them that heralds significant future
supplementations to writing's role, appearance and technique" (Fischer 298). The typewriter and
computer, then, created a similar revolution in not just the distribution of literacy but in the
possibilities of text, the spaces that writing can happen, the things that writing can do. David
Bolter agrees; while the first printed works after the printing press had the same form as the
original, hand-scribed documents, after a while, the technology allowed for steady changes in the
medium: the machine could do what the hand could not, and as a result, the possibilities of the
genre began to change. This is happening again:

*Indeed, Gutenberg's Bible can hardly be distinguished from the work of a
good scribe, except perhaps that the spacing and hyphenation are more
regular than a scribe could achieve. The early printers tried to make their
books identical to fine manuscripts: they used the same thick letter forms,*

the same ligatures and abbreviations, the same layout on the page. It

took a few generations for printers to realize that their new technology

made possible a different writing space, that the page could be more

readable with thinner letters, fewer abbreviations, and less ink. Today we

find ourselves in a similar interim with the electronic book. We have

begun by using word processors and electronic photocomposition to

improve the production of printed books and typed documents. Yet it is

already becoming clear that the computer provides a new writing surface

that needs conventions different from those of the printed page. (Bolter

3)

Bolter finds that "the computer is performing a kind of writing on the world" (10), bringing

about ways of thinking about reading and writing that at times run antithetical in the

paradigm of print literacy; where the book represents permanence, authority, and static

knowledge (7), electronic writing "emphasizes impermanence and changeability" (3),

allows readers to transition "quickly and repeatedly between the roles of reader and

writer" (6), and promotes dynamic, collaborative, and distributed knowledge. Bolter's

"Writing Space" is described as a "physical and visual field defined by a particular

technology of writing" (11), and it brings with it a new paradigm of literacy:

The conceptual space of a printed book is one in which writing is stable,

monumental, and controlled exclusively by the author. It is the space

defined by perfect printed volumes that exist in thousands of identical

copies. The conceptual space of electronic writing, on the other hand, is

characterized by fluidity and an interactive relationship between writer

and reader. These different conceptual spaces foster different styles and

genres of writing and different theories of literature. (11)

The Papyrus and pen of Egypt, traced back possibly as far as 3000 BC (Fischer 47), the "wedge-shaped," cuneiform writing on clay or stone tablets (Fischer 56, Powell 103), the vellum codex of the fourth century (Bolter 6, Fischer 244), the printing press, typewriter, computer, and the internet: each technology ushered in not only a spread of literacy but new ways of thinking about text, new *spaces* for writing and the possibilities therein. Each paradigm did not *replace* the paradigm before it, but added new possibilities, new dimensions, new things, modes, and means of writing and making. It is in this context that I build my work: it is in the consideration of the digital writing space. It is in creating spaces for our students to build and write within, to allow them to explore, play, and share, but most importantly, write. For even in this digital age, even as the shape of good education is forming up to look nothing like the traditional forms of education and current-traditional literacy that forms the basis of century-old conceptions about learning, even as writing is taking on new forms, and is appearing in multifaceted, multimodal ways, writing remains the backbone. As Fischer writes:

Writing has become an indispensable expression of our social species as

we begin to venture beyond all known limits. Yet to leave a mark on

creation that imparts a form of thought itself – this impulse characterizes

not only us but also our immediate antecedents of tens of thousands of

years ago. . . As writing continues to serve and advance humankind with

multi-form wonder, it is defining and creating a new humanity. Whatever

form writing may take in future, it will remain central to the human

experience, empowering and memorializing. As an Egyptian scribe

brushed in ink some four thousand years ago: 'A man has perished and

his body has become earth. All his relatives have crumbled to dust. It is

writing that makes him remembered.' (Fischer 319)

Let's lay down a pedagogy of writing, then, that will help our students speak to a redefined humanity. Let's lay down an invitation to play, to build, to think, to *write*. To do that, let's think about the space of writing, the Microworld.

A LEARNING STORY, PART ONE

When I was eight, my father, a chemistry professor at Fresno State, was on sabbatical and we moved for a year from the stretched out, hot, dry air of Fresno, California, to a little second-story apartment in Providence, Rhode Island. My father had grown up around there so for him, we were going back to his friends. But I was going away from mine. There in that little apartment, the primary feeling of that year was of my on-my-ownness. It was a time when I had time to myself. It was a time when I had to figure myself out. It was a time when my imagination thrived.

It was the year of turning posters backwards and taping them to the walls of my bed so that they became canvases: I drew buttons, knobs, and dials, I drew a wide screen and filled it

with planets and stars. I turned my bed into a spaceship and I'd spend hours each day exploring the galaxy of my mind.

This was the year that computers were doing something similar. The early '90s were a time when the internet was starting to grow into public, educational, and creative consideration. Many of my creative moments were spent on computers with software that was built to find ways to encourage and harness that creativity. I remember playing games like *The Incredible Machine*, which let me experiment with physics and cause-and-effect as I build elaborate, Rube Goldberg-styled contraptions that expanded across the screen. I drew pictures and wrote stories in *Kid Pix,* which turned my brushes into stamps and shapes. I drew adventures in *Hypercard,* laying out 'card' after 'card' like a storyboard or frames of a comic. But the greatest pursuit, the thing that most engaged me, that most formed me, my interests, my self-identity, and my future educational trajectory was the MOO.

The MOO (Multi User Domain, Object Oriented) is a text-based, virtual, constructible, multi-user world. It was created as a derivation of multiplayer, textual adventure games known as MUDs (Multi User Domains). In a MUD, a user could log in, create a character, and then explore a fantastic textual world; they could meet others, communicate, and work together to explore, fight monsters, and level up. Mikael Cardell offers a brief history of this process, starting with Willie Crowther and Don Wood's "Adventure," a text-based single-player adventure game, moving to Tim Anderson, Marc Blank, Bruce Daniels and David Lebling's "Zork," which added complex narrative to the adventure game format, to the original MUD in 1979 by Roy Trubshaw and Richard Bartle which added the functionality of multiple users in the gameworld (Cardell 3). From this came Janes Aspens TinyMUD, which invited players to not only explore the textual

world, but also build. By adding this element of constructability and creativity, TinyMUD grew with explosive popularity. In *Inter/Vention,* Holmevik explains that TinyMUD exemplified the "Hacker Noir" mentality:

> *In the typical hacker fashion, Aspnes had the first version of his system up and running in record time—just a weekend of fast and furious hacking. TinyMUD rapidly became a phenomenon that outgrew even its creator's wildest expectations. People from all over the world began inhabiting the pervasive/ virtual world of TinyMUD, and it gradually took on a life of its own and evolved into something that its designer had not anticipated. The computer program became a community. (Holmevik 98)*

The genre of the MOO rose from this: instead of simply "playing" the text-based virtual world, a user was able to "build" the world; users could create the next rooms that could be explored, writing and extending the world around them. Copying was allowed: by creating "children" of the objects found around them, users could create and modify their own objects and populate the world with new things to see and do. In this sense, the places and objects that constituted this virtual world were genealogical. As Cardell explains:

> *In MOO, every object, except the original parent object, has got a parent. When the verb description is called for, the object normally has code corresponding to that verb. If it does not, the pass() function is used to execute the description verb of the parent object. In this case, however,*

both the description of the parent and of the initial object are shown to

the participant. (6)

A user could make a copy of, for example, a virtual dog that they encounter. The user will then have her own dog, and is able to "read" it, tracing its ancestry back to the "generic dog" object. The user can then add to this code on her own dog, engaging in a creative act that may later be continued by others: the user could add functionality to make her own "Dalmatian," and another user may use that as a parent object to create his own "Flying Dog," complete with flapping wings. In the MOO, you have an in-world creation system: the very mechanics of the worlds itself can be examined, modified, and extended. The MOO becomes the site of the "Bazaar," built of textual fabrics that can be sampled and repurposed. Through this process, users blend through the processes of playing, exploring, reading, copying, coding, and writing. As they explore and add to the world around them, they're engaged in curiosity and creativity, forming the identity of their digital avatar, engaging in experiments, and working together.

These modes of creation are layered a fused across genres: they involve traditional writing, experiment with identity, coding, and dynamic communication. Cardell offers descriptions of a player's avatar and home as example of this hybrid creation. The sample person described here has an avatar that reads:

You see a quiet, unassuming figure, wreathed in an oversized, dull-green

Army jacket which is pulled up to nearly conceal his face. His long,

unkempt blond hair blows back from his face as he tosses his head to

meet your gaze. Small round gold-rimmed glasses, tinted slightly grey,

rest on his nose. On a shoulder strap he carries an acoustic guitar and he

lugs a backpack stuffed to overflowing with sheet music, sketches, and

computer printouts. Under the coat are faded jeans and a T-shirt reading

'Paranoid CyberPunks International'. He meets your gaze and smiles

faintly but does not speak with you. As you surmise him, you notice a glint

of red at the rims of his blue eyes, and realize that his canine teeth seem

to protrude slightly. He recoils from your look of horror and recedes back

into himself. (9)

This, Cardell argues, is traditional creative writing in any sense. It's descriptive and constructive of identity, both with imagery and action. It's lovingly crafted and important: it represents how a person wants to construct and represent herself to the world. Just as personal are the homes that every player creates in the MOO, fleshed out to represent not just the player's unique personality and creativity, but to constitute the virtual space. The room's description, then, will function as identity, writing, and scene for the narratives that will play out within it in real time, which is shaped by, and shaped, by the conventions and expectations of the players within the MOO who share in the reality. As Cardell points out, "A MUD home can be a sort of secondary description of your character and character personality. Something that clearly shows that a MUD world indeed is an alternate reality, and not just a place for role playing, is that it is considered very rude to enter someone's home without asking" (9). As one can see, social expectations become part of this virtual environment. The writing process in here is dynamic: an author does not have complete control over the world, but instead, creates the objects within the world and codes in their behaviors. What will happen next, when real players/readers interact with these artifacts, is

10

beyond the author's control. Cardell offers that it is here that this kind of coding/creation/writing takes on the qualities of (postmodern) literature:

> *With this, I want to point out that the _program_, the code itself, should be regarded as literature. When the human author has stopped creating text, and begun creating _ programs that produce text_, the program itself takes on the role of literature. Writing is now meta-writing, a creation of entire worlds that describe themselves to a reader (6).*

When I was eight my father sat me down in front of a Macintosh computer and logged me in to a MOO called Diversity University. This was a MOO for teachers and educators to interact, network, and create a world. It was a world that I was immediately engaged with. I spent my early hours in this world getting familiar with the controls and with exploring. I had to learn how to navigate. I walked through university parks, lined with trees, with fountains glimmering in the sun, and even though that was all text, I can still see it, visually, beautifully. I got to know people, both real, and fake; there were 'bots' in this world, objects that looked like people, and could talk and answer basic questions, but were actually programmed constructs. But I met real people, too. One friend I made, Killian, showed me that I did not have to walk as I went from room to room in this world: I could teleport, I could fly. In fact, I could do most anything I could dream up in this constructive environment. I could be whomever I wanted to be by 'describing' myself and customizing the text that people would see when they typed 'look' at me. In fact, I could customize all the 'verbs' and 'adjectives' of my virtual character. When I entered a room, I could decide to plainly walk in, or mosey on in with a dance, or appear in an explosion of blue smoke and sparkles. I didn't opt for

that. I would simply fly on in and fold my wings neatly at my back. Yes, I would be a 'rebel angel.' I made myself up to look like a young man. I would look cool, with a leather jacket and jeans.

There were many factors in play here that contributed to this being a deeply engaging experience, one that would hold my attention even as I struggled to learn what I needed to know to do the things I wanted to do in this virtual world. These will be fully unpacked and pedagogically analyzed later in this work, but for now, I want to point out two major factors: One, I had models and mentors everywhere. Two, I was living in a real, reflexive, responsive world with a real audience. For the former, what enraptured me about this virtual world was that everywhere I went, everything I saw in this world, I could *read*; I could open the hood, as it were, and peer at the writing and coding that was its machinery. I could see how it worked. And even if I couldn't understand it, and at that point, that was almost entirely the case, I could still use it, and even own it: this was a world that allowed, encouraged even, copying. If I saw a player float on in and be followed by a little cat, I could study that cat, and then I could make my own, and then change it as I saw fit. When you 'copy' an object in a MOO, it's called making a 'child' of the object. That object is then yours, with all its original programming, but it's also a blank slate: you can then describe it however you want, remake it, add on to its functionality with new programming, give it new 'verbs' and 'properties.' Someone else can then make a copy of that object, reproducing all of the functionality that not only you have created, but the functionality of the objects that came before, its 'parents,' 'grandparents,' and on. I could make my own 'cat,' then, but maybe I'd describe it as a little dog, and, to match me, I'd give it wings and modify its verbs so that it would fly in and swoop about his owner's ankles, barking with joy. That's what I did, and in doing so, I joined a genealogy of creation, extending back to the blank and formless generic 'thing;' a

genealogy that perhaps went something like 'generic thing,' 'generic pet,' 'generic smart pet,' and now, finally, with me, 'generic smart winged pet.' With this genealogical world, I didn't have to start from scratch. I could add on to it, benefitting from and even expanding its complexity, without even having to fully understand the machinery of how each 'parent' object worked. And so I worked. I made copies of everything I saw that inspired me, remaking them to my creative will: the generic room became my cloud, a dynamic home that floated above the buildings of this virtual world, that brimmed with sparking storm energy. The generic bot assistant became my ninja-robot-butler. My new winged dog, "Fluffy," yipped and swooped around my feet. As time went on, my room slowly became cluttered with furniture, toys, and half-finished experiments. Copies, mementos; the world was brimming with new things to see, make, to be inspired by.

Because this was an online world, my work in here felt like it mattered. This was the second major factor: there was a real audience here who would see and interact with my work. I could share myself, my interests, and my creativity, with a dynamic network of people. I could make a room and then spend actual social time in there, drinking virtual tea and having real conversations. I made friends. Killian became a mentor to me. When I got stuck on a particular idea or project, he would be there to help me figure out where I went wrong. He inspired and supported me on multiple levels: he served as model, full of interesting objects and projects that could be copied, he served as friend and audience, and he served as teacher or mentor, actively working with me on a project or a piece of code. This was the power of the audience: they made the world alive, they and their work were nodes of information, networks, affinity spaces. They would read, respond to, and live in my creations. They made it all real. The story of little Daniel in Diversity University doesn't have a happy ending. In the end I was out of my depth, if not in terms

of the programming, which was complex despite the natural modelling and scaffolding nature of the world which let me get as far as I did, but in terms of maturity. As an eight-year-old in a world full of adult academics, I stuck out like a sore thumb, and my antics weren't always welcome. For example, I won't dwell on this, but there was an issue with a water-balloon-tipped crossbow I had designed and a board room meeting. Eventually I had to move on. I eventually moved back to Fresno, and eventually went back to regular, public education, and from then on, I knew something. I didn't know exactly how to put it to words when I was eight, but I knew it enough that it would serve as my trajectory through the rest of my time as a student, through middle, high school, and my college years: the type of learning I was engaging in in that MOO was inspiring, supportive, emancipatory, and transformative, and it was built on the opposite of the traditional concepts of pedagogy that served as the engine of traditional education.

THE CALL FOR 21ST CENTURY LITERACIES AND THE FAILURE OF CURRENT-TRADITIONALISM

Kathleen Yancey writes that "Never before has the proliferation of writings outside the academy so counterpointed the compositions inside" ("Made Not Only in Words" 298). All over the world, increasingly, students are spending their after-school time in playful, creative, connected forms of multimodal composition and learning in YouTube networks, fan-fiction communities, and game-based affinity groups. In participating in these communities, they are employing technical, expressive, and creative techniques of literacy that the traditional educational apparatus is not exercising. They're learning in ways that defy the norms of structures that have been core to the mechanics of traditional education. Yancey points out that they work without being forced to; they are not assigned anything, and they aren't reinforced or penalized

with a grading system: "There are no As here, no Dean's lists, no writing teacher to keep tabs on you" ("Made Not Only in Words" 300). What drives them, instead, is self-guided interest and passion, powered by the desire to participate in these vast, reflexive and responsive creative communities of making, "a model of communication practices incorporating multiple genres related to each other, those multiple genres remediated across contexts of time and space, linked one to the next, circulating across and around rhetorical situations both inside and outside school" ("Made Not Only in Words" 308). In "Writing in the 21st Century," Yancey elaborates: "With digital technology and, especially Web 2.0, it seems, writers are *everywhere*—on bulletin boards and in chat rooms and in emails and in text messages and on blogs responding to news reports and, indeed, reporting the news themselves as I-reporters" (*Writing in the 21st Century* 4). They're driven from bottom-up passion and a desire to participate: "In much of this new composing, we are writing to share, yes; to encourage dialogue, perhaps; but mostly, I think, to participate. In fact, in looking at all this composing, we might say that one of the biggest changes is the role of audience: writers are everywhere, yes, but so too are audiences, especially in social networking sites like Facebook" (*Writing in the 21st Century* 4), and are learning not in structured, orderly, and hierarchical forms but through ad-hoc networks where they can "swap hats" between mentor, mentee, apprentice and expert, in "extracurricular social co-apprenticeships" (*Writing in the 21st Century* 6).

Not only are schools not tapping into this style of networked learning, in many ways, traditional concepts of education actively work against this innovation and against the students' interests. In *Pedagogy of the Oppressed*, Paolo Freire traces out how the assumptions of the dominant pedagogical paradigm fail not only to educate but function to reinforce power

inequities: education becomes an "instrument of oppression." In this "banking concept of education":

> *The teacher talks about reality as if it were motionless, static, compartmentalized, and predictable. . .His task is to 'fill' the students with the contents of his narration—contents which are detached from reality, disconnected from the totality that engendered them and could give them significance. . .The student records, memorizes, and repeats these phrases without perceiving what [it] really means. . .it turns them into 'containers,' into 'receptacles' to be 'filled' by the teacher. (72)*

Within the isolated void of the classroom, information is given without context to the wider environment nor consideration of the context of the student. This information will not be well-retained by the student. It certainly won't serve to transform the student for any emancipatory potential. This, Freire argues, is by design: the holders of this paradigm have no desire to subvert it and the power it offers: "The capability of banking education to minimize or annul the students' creative power and to stimulate their credulity serves the interests of the oppressors, who care neither to have the world revealed nor to see it transformed" (72). These educational values live on to plague traditional ideas of pedagogy in our own country, resulting in nationwide consequences. Davidson and Goldberg mark that the "United States currently ranks 17th among industrialized nations in the educational attainment of its populace" (*The Future of Thinking* 23), with pedagogical values that are deployed through standards-driven initiatives such as the No Child Left Behind Act of 2001:

> *With its lockstep national standards and standardized testing, where*
> *school districts are penalized with reduced funding if students do not*
> *perform to a certain level ... NCLB rewards teachers for teaching to the*
> *tests. National standards and assessments have replaced other measures*
> *of learning, including those gauged by classroom teachers themselves.*
> *(22)*

Davidson and Goldberg believe that we have to reconsider prioritizing "individualized performance in assessments and reward structures," which serve only to "wade down and impede new learning possibilities" (52). If we don't heed the call for change, we "continue to push old, uniform, and increasingly outdated educational products on young learners at their—and, by implication, society's—peril" (24).

In *Connected Learning: An Agenda for Research and Design,* Ito et. al argue that today's educational institutions are struggling to provide pathways to opportunity for all youth:

> *In the past two decades, earnings have dropped for those without high*
> *school degrees, while dropout rates have continued to remain high*
> *among vulnerable populations. At the same time, privileged families are*
> *turning to costly private schools and enrichment activities for an*
> *educational edge, preparing their children for a competitive and volatile*
> *market for professional and fulfilling jobs. (Ito et al. 196)*

The economy is changing, as are the expectations and skill sets required of the global labor market, and yet the modes of education aren't. This results in a continuation and widening of educational, digital, and economic gaps across racial and class-based divides:

> *Since the late seventies, there has been significant growth in college attendance among youth in higher income brackets, while rates of college attendance among poor youth have remained relatively flat. To the extent that education confers a relative, rather than an absolute, benefit, this trend will undermine the labor market returns of higher education for those in the upper brackets. Indeed, wages for both men and women entry-level college graduates (i.e., workers aged 23-29) have fallen over the period 2000-2011. (230)*

Current educational methods, built on centuries of assumptions about classical learning, fail to reach students who engage in a variety of learning styles and have a variety of interests. Ito et. al also extend Freire's argument:

> *We can't expect young people to be able to "bank" knowledge and skills from school and apply them to a stable world of work later in life. Instead, we need an approach to educational reform that recognizes learning as an ongoing process, connected to a diverse and evolving ecosystem of learning resources, institutions, communities, and outcomes. (205)*

Could education be refigured in such a way as to access and exercise learning in "flexible, informal, diverse, and interest-driven learning environments" (219)? Can we have an agenda that seeks to lead all students, not just the privileged few, down pathways that have them engaging in their interests, learning to use multimodal and digital tools creatively, and learning how to learn? In several case studies, Ito et. al paint pictures of self-driven learners who, assisted by the values of the multimodal internet, have developed and self-taught in ways that the traditional educational apparatus failed to achieve: Clarissa, Case Study One, developed as a writer by engaging in a connected community of fan fiction, which propelled her to deeper work:

> *Online, she found a community of like-minded peers who shared her interests, and who collaboratively wrote stories and critiqued each other's work. Clarissa made great strides in her writing, engaging with it in ways that felt more authentic, and more motivating than her writing classes at school. In the end, she was proud enough of her work to use it in class assignments and in her college applications. She was admitted to two competitive liberal arts colleges, Emerson and Chapman, and attributes her success to the writing skills she developed in the role-playing world. (67)*

In Case Study Two, a student known as "Snafu Dave" developed as a successful web artist by navigating online tutorials, working with peers, and sharing art and work online. He was propelled by his own interest, art and craft, and was given a range of affinity spaces that he could select from in order to learn at his own pace (210). These case studies show how students get "hooked"

in a student-centered, dynamic learning process, where each step is contextually meaningful, that looks little like the modes and methods of traditional teaching. What is needed is a new framework of learning that allows for experimentation and "messing around," to let students learn across a combination of modalities:

> *The Digital Youth study likewise found that young people required a certain amount of autonomy and unstructured time to "mess around" online in order to explore knowledge and become self-directed learners (Ito et al., 2009). In other words, an over-emphasis on structured education and individual competitiveness can rob young people of meaningful social participation and the capacity for self-directed and open-ended learning and inquiry. . . Learning is meaningful when it is part of valued relationships, shared practice, culture, and identity. . . In other words, learning is highly relational and tied to shared purpose and activity. . . We understand from this body of work that when young people are learning with peers and adults, pursuing shared interests and goals, the learning is both meaningful and resilient. (778)*

Others agree that the 21st century demands new ways about thinking about the teaching process and new literacies that have to be discussed and scaffolded. To respond to the dangerous consequences of this increasingly outdated set of pedagogical assumptions, Yancey calls for:

> *A 21st century curriculum . . . a curriculum that carries forward the best of what we have created to date, that brings together the writing outside*

of school and that inside. This composition is located in a new vocabulary,

a new set of practices, and a new set of outcomes; it will focus our

research in new and provocative ways; it has as its goal the creation of

thoughtful, informed, technologically adept writing publics. (Yancey,

"Made Not Only in Words" 308)

In "The Digital Imperative: Making the Case for a 21st-Century Pedagogy," Elizabeth Clark agrees:

In our nascent digital culture, the traditional essayistic literacy that still

dominates composition classes is outmoded and needs to be replaced by

an intentional pedagogy of digital rhetoric that emphasizes the civic

importance of education, the cultural and social imperative of "the now,"

and the "cultural software" that engages students in the interactivity,

collaboration, ownership, authority, and malleability of texts. Today, the

composition classroom should immerse students in analyzing digital

media, in exploring the world beyond the classroom, in crafting digital

personae, and in creating new and emerging definitions of civic literacy.

(27)

Yancey's "call to action" asks teachers to consider how students are composing every day in their digital environments, to embrace the ideals and forms of these new models of composing, and to help "our become the citizen writers of our country, the citizen writers of our world, and the writers of our future" (Yancey, *Writing in the 21st Century* 1). This will involve studying new

models of composition, new models of writing curriculum, and new models for teaching, all designed for this age of the 21st century environments of public composition and participation (7).

A MICROWORLD PEDAGOGY

I answer this call by outlining what I call a "Microworld Pedagogy," which postulates that learning happens most effectively when students are involved in collaborative environments of passion-driven construction. In building this pedagogy I draw heavily from the ideas of Seymour Papert's "Constructionism," Henry Jenkins's study of networked fandoms and communities, James Gee's concept of "Passionate Affinity Spaces," Mimi Ito's concept of "Hanging Out, Messing Around, and Geeking Out," Ian Bogost's "procedural rhetoric," and Marc Prensky's "Partnering" for learning. I use these ideas to inform our teaching in the writing classroom.

Seymour Papert incorporates ideas from both Jean Piaget and Lev Vygotsky in a pedagogy that stresses play and collaboration in the act of co-construction on a shared project. This pedagogy, called "Constructionism," takes from Piaget the idea that students learn and develop at their own levels through interaction with the world around them, through multiple models, in an unplanned (and unplannable) process. Learning ranging from navigating spatially within the world to reading fluently comes in slow crawls or fast dashes, sometimes responding well to formal instruction, sometimes not, sometimes not needing it at all (Piaget, "Part I" 7–12). Papert reflects on his own learning and development and finds that many of the complex processes he understands were built on countless lessons that were never directly taught to him, being applied only when he was cognitively and developmentally ready to learn them:

The understanding of learning must be genetic. It must refer to the genesis of knowledge. What an individual can learn, and how he learns it, depends on what models he has available. This raises, recursively, the question of how he learned these models. Thus the "laws of learning" must be about how intellectual structures grow out of one another and about how, in the process, they acquire both logical and emotional form.

(Papert, Mindstorms *2)*

In a story of his fascination with flowers, for example, Papert admits that he spent most of his life without any understanding of how to tell one flower from another. Even when he would hear information about flowers, the information would not be retained—he was not in a position to have that information participate in his development at that time. But, over a series of experiences, when enough background knowledge was in place that he could make connections between etymologies and names of flowers, an interest in one flower lead to his learning about another, and then another, and then beyond: "The deeper I got into my 'affair' with flowers," Papert writes, "the more connections were made . . . spread in many directions; I was learning Latin words, I was picking up insights into the history of folk-medicine; and I was gaining or renewing geographic and historical knowledge" (Kafai and Resnick, *Constructionism in Practice* 22). What has happened here was that Papert found himself involved in an affinity space, wherein learning was purposeful, contextualized, and connected from point to point across varying sources of information. Learning, understood in this way, cannot be reliably transmitted from any single source at any given time. Papert describes the model of the "gothic cathedral": learning cannot be planned as an architect would build a building, structuring and placing each piece on

each piece. Instead, learning has to occur through the messy, co-constructive acts of making, communicating, and engaging within the world (*The Children's Machine* 62).

In *Mindstorms,* Papert meditates on the power of the computer to create these kinds of co-constructive environments. Arguing that the computer can create powerful, customized, and engaging learning spaces, Papert frames the learning of math (and other concepts!) through an activity of learning how to work in a programming environment called LOGO. Rather than trace a concrete set of lessons, Papert offers students a goal—students are to design a game, drawing, or animation by learning the programming required to get the computer to make the desired designs. Through scaffolding of simple concepts—this is how a student makes a line, then a shape, then multiple shapes, then animated shapes, students start to learn through trial and error. When they make a mistake, the execution of the code results in something different; on their own and in their own constructive environments, students can work with the mistake and fix it—or let that mistake inform new understanding and new creative possibilities. The learning, here, covers information about geometry, language, velocity, processes, and procedures, and it is developed bottom-up through engaged and social activities, rather than isolated, hegemonic, top-down transmissions of information. This is an inversion of how some people think of computer education. The top-down approach sees a computer as "programming" the student, feeding the student the information they are supposed to learn. But when the student programs the computer, the student is put in a position of awareness and control over her learning:

> *In the LOGO environment the relationship is reversed: The child, even at*
>
> *preschool ages, is in control: The child programs the computer. And in*
>
> *teaching the computer how to think, children embark on an exploration*

about how they themselves think. The experience can be heady: Thinking

about thinking turns the child into an epistemologist, an experience not

*even shared by most adults. (*Mindstorms *9)*

Papert uses the term of the "microworld" here (*Mindstorms* 55); the student is working in an

environment of construction and is learning within a "microworld" that allows for possibility, that

communicates teaches, and grows with the student as it is developed. The computer, here,

shepherds a transition from learning conceived as top-down, static, and transmissive, to learning

conceived through interaction, collaboration, and engagement on student-centered projects. In

The Children's Machine, Papert describes the concept of microworlds in the teaching of math.

Instead of using "drill and kill" practices that expect students will develop in math by solving math

problems over and over again, Papert suggests that students will better learn if they engage with

math in situations where they engage with math in *use*, in order to understand and interact with

the *systems* around them. Papert gives a metaphor of learning to fish: instead of trying to learn

by reading and memorizing a book about fishing, one will learn to fish by engaging in the

environment of fishing, to be in the world, to get one's hands on the tools, to develop a feel for

the best time of day, the best locations, and the best materials to use by experimenting with the

connected systems that make the fishing activity's ecology. So too can we think of learning math:

students can develop math skills engaging in "a large range of mathetically rich activities or

'microworlds'" (*The Children's Machine* 139), which in Papert's argument for microworlds, is in

learning to program in the LOGO environment (Mindstorms 9).

The concept of Microworlds though programming environments persists to this day;

LCSI's programs of the same name, *MicroWorlds EX* and *MicroWorlds JR*, are built as continuations

of Papert's LOGO MicroWorld project. In an article published by LCSI, "Microworlds, Computational Thinking, and 21st Century Learning," Susan Einhorn that while web applications such as "Facebook, Twitter, Flickr, [and] Google" will involve students in creative and networked situations, they won't teach students "computational thinking" (2); students will be subject to the form and function of the application rather than learn how to express themselves in their own ways. Computational thinking, however, leads to understanding of how these programs are built, how they can best be used, and how new programs can fill the gaps; it is "an important, essential, and very truly 21st century skill" (3), and the best way to learn it, Einhorn argues, is through learning programming. Einhorn reveals that in the process of learning to program by creating the project the students wants to create, the learning process is contextualized from the ground up, and involves the development of a suite of skills:

> *A student, when using programming to tackle a question, has to develop a hypothesis as to how best to solve or answer it, then build, through analysis of the problem, a set of rules (an algorithm) that can be used to test the hypothesis, after which she can review the results (data), and revise the solution. The art of programming requires creativity and inventiveness, logic, algorithmic thinking, and an appreciation of the recursive nature of this process, as the student learns from her failures, refines her work, and gets a deeper understanding of the problem. (3)*

MicroWorlds JR and MicroWorlds EX, the former a graphical interface for young children and the latter a more powerful platform focused on textual programming, are designed around this

concept and use the LOGO language at their core (3). Einhorn argues that learning with these platforms will teach not just mathematic and programming literacies, but will also help students develop awareness over how they think and learn:

> *It is through this sequence of actions – seeing a pattern, creating a rule (an algorithm) that describes that pattern and then testing to see if the logic is correct – repeated over time and in a playful, exploratory approach – that young learners begin to develop a new perspective on how to approach questions/challenges in other areas. (3)*

While the theory here is sound and we can see that Einhorn is well versed in Papert's constructionism, the concept of the microworld can be extended far beyond a single platform and beyond programming or computational literacy. Lloyd Rieber takes the concept of the Microworld and extends it beyond the teaching of programming and into interaction with the fields of game design. Drawing from Papert, Rieber defines a microworld as "a small, but complete, version of some domain of interest," wherein people learn a domain not by studying it, but by "living" inside it (46). Rieber compares this learning to what happens when a child plays in a sandbox: there are no scripts here, no lesson plans that structure out exactly what and when a child is supposed to learn. Instead, the child plays, and through play, develops a tactile understanding of tools, texture, and density. This learning is focused and "self-regulated:"

> *First, a microworld presents the learner with a simple case of the domain, even though the learner would usually be given the means to reshape the microworld to explore increasingly more sophisticated and complex*

ideas. Second, a microworld must match the learner's cognitive and affective state. Learners immediately know what to do with a microworld-little or no training is necessary to begin using it (imagine first "training" a child how to use a sandbox). . . . The two dominant characteristics of microworlds (i.e., simple case of a domain; match the user) present a large set of complex assumptions and expectations for a would-be microworld designer to meet. Among the most important is that learners are expected to self-regulate their own learning in a microworld. Self-regulated learning is when a person takes responsibility for his or her learning and, as a result, takes appropriate action to ensure that learning takes place. (46-47)

Rieber defines this "self-regulating" learning with three main characteristics: learners find the environment they are working within to be "intrinsically motivating," that is, the work within the environment conveys its own rewards; second, that the learning is "metacognitively active," in which students are aware of and actively engaging in their learning processes by making decisions about what they need to learn and where to learn it in order to do what they want to do; and finally, self-regulated learning are "behaviorally active" in that they actively work within and transform the environment around them in order to achieve their goals (47). Rieber offers that videogames, especially simulation games, are ideal for situating students in these microworlds of learning, and we will explore this concept more Chapter Three. In Chapter Four, drawing from what we learned in the domain of games studies, I will apply this microworld concept to the

teaching of writing through interactive text. But for now, it's important to note that the constructionist learning that forms the theory of the learning that happens within microworlds can be found in action all over, especially across the fan-driven creative communities on the Internet.

In his study of what he calls Convergence Culture, where communities are formed at the convergence of fan interest, Henry Jenkins explores how fan creativity, multiple forms of media, and corporate interest *converges* in a culture of creativity, communication, response, and passion. The interaction at this scale is made possible by the Internet. Though there have always been passionate and creative fans, "What has shifted is the visibility of fan culture. The Web provides a powerful new distribution channel for amateur cultural production" (Jenkins, *Convergence Culture* 131), which inspires a hotbed of *meaningful* creative work, which naturally undergoes a "writing" process of development, iteration, and revision:

The story of American arts in the 21st-century might be told in terms of the public reemergence of grassroots creativity as everyday people take advantage of new technologies that enable them to archive, annotate, appropriate and recirculate media content. . . To create is much more fun and meaningful if you can share what you can create with others and the web, built for collaboration within the scientific community, provides an infrastructure for sharing the things average Americans are making in their rec rooms. . . Most of what the amateurs create is gosh awful bad,

yet a thriving culture need spaces where people can do bad art, get

feedback, and get better. (Jenkins, Convergence Culture 136)

At these sites, the lines between professional, commercial, and novice become blurred as media traverses across boundary lines. Some of the work that Jenkins describes, is, yes, "gosh awful bad," but at the other end of the spectrum, "A lot of that will be good enough to engage the interest of a modest public, and the best will be recruited" (*Convergence Culture* 136). The sites become sources of "corporate hybridity," where fan content and commercial content draw from each other. "Hybridity occurs when one cultural space – in this case, a national media industry – absorption transforms elements from another; Hybrid work thus exists betwixt and between two cultural traditions while providing a path that can be explored from both directions" (Jenkins, *Convergence Culture* 112). Jenkins finds that these forms of collaborative work more closely match the ways the people are working outside of the classroom in their workplace environments and hobbies:

So far, our schools are still focused on generating autonomous learners;

to seek information from others is still classified as cheating. Yet, in our

adult lives, we are depending more and more on others to provide

information we cannot process ourselves. Our workplaces have become

more collaborative; our political process has become more decentered;

we are living more and more within knowledge cultures based on

collective intelligence. Our schools are not teaching what it means to live

and work and such knowledge communities, but popular culture may be

doing so. (Jenkins, Convergence Culture 129)

Henry Jenkins cites that nearly half of all teens in America are involved or have been involved in the process of creating media content, and "roughly one third of teens who use the Internet have shared content they produced. . . involved in what we are calling participatory cultures" (Jenkins, Ito, et al., *Participatory Culture in a Networked Era* 3). Through websites and communities that promote the practices of sharing and remixes, a rich participatory culture is founded and driven by social affiliation, the ability to find and express one's self, collaborative problem solving as communities add to each other and mentor each other, and circulation, which keeps the flow of information and entertainment constantly alive and refreshing:

> *A participatory culture is a culture with relatively low barriers to artistic*
>
> *expression and civic engagement, strong support for creating and*
>
> *sharing one's creations, and some type of informal mentorship whereby*
>
> *what is known by the most experienced is passed along to novices. A*
>
> *participatory culture is also one in which members believe their*
>
> *contributions matter, and feel some degree of social connection with one*
>
> *another (at the least they care what other people think about what they*
>
> *have created). (Jenkins, Ito, et al.,* Participatory Culture in a Networked
>
> Era *3)*

 Jenkins argues that interaction in these co-creative communities, which spring from and revolve around "fandoms" relating to TV shows, books, movies, hobbies, and videogames, calls upon and

hones a mass of new skills that constitute digital literacy and the skills one needs in the modern, connected workplace. They include the ability to play and experiment in one's surroundings in order to identify problems and explore the environment in order to find ways through them; performance, to adopt identities and be able to impress, entertain, convince, and/or participate effectively; appropriation, the ability to read, sample, and remix content to add to the development of the community; multitasking; the ability to use and contribute to collective intelligence; and negotiation, the ability to navigate across diverse communities and communicate across multiple perspectives (Jenkins, Ito, et al., *Participatory Culture in a Networked Era* 3).

James Gee calls the spaces where this kind of work happens "affinity spaces" and argues for their potential as learning environments (Gee and E. R. Hayes, *Language and Learning in the Digital Age* 69). He finds that the learning that happens in these spaces is much more effective for some students than the kind of learning they're exposed to in the traditional classroom. Learning in affinity spaces is student-driven, multimodal, and multi-sourced: the student, engaged deeply in an interest in a hobby, creation, and/or community contribution, pursues multiple forms of learning. The student draws from YouTube tutorials, gets feedback from peer mentors, engages in trial and error, and copies code through a self-motivated process. As she engages, the student refines her skills as she works to create the mod, story, or remix she is excited about making, growing within and constituting the environment of possibilities. The key to affinity spaces is that they are fueled by *passion*. When a student is in a position to choose the project they want to work towards, to identify for themselves what skills they need to build and what information they need to find, when they are inspired by choices, examples, and communicative and collaborative

possibilities, the affinity space is working at its best: the student becomes empowered. I have had students and friends who have spent hours on top of hours in unbroken concentration in a passionate affinity space, even when they wouldn't have the patience to spend minutes of that attention in a traditional academic setting.

Prensky seeks to draw upon this style of student-driven, bottom-up, passionate work in a pedagogy of "partnering for real learning." Like Yancey, Prensky agrees that today, students are learning more, and more effectively, in spaces that are built on values completely at odds with traditional assumptions about teaching and learning:

> *It is in the afterschool world, rather than in schools, that many of our kids are teaching themselves and each other all kinds of important and truly useful things about their real present and future. A host of powerful tools are available to them for this purpose, and those tools-and our kids through using them-are growing more and more powerful each day. After school, no one tells kids what to learn or do. (Prensky,* Teaching Digital Natives *2)*

Prensky situates a pedagogy of "partnering," wherein the teacher, rather than designing the entire assignment, allows the students to come up with and work on their own project ideas. The students become responsible for deciding on a topic that they feel passionate about, deciding and learning what genres, tools, and technologies will help them achieve that project, learning how to research, learning how to draw and answer questions, practicing and communicating with and about the project, and creating presentations to demonstrate the projects fully. The teacher,

then, takes on the role of creating and asking (but not answering!) the right questions, offering examples, inspiration and guidance, helping students contextualize and expand their material, and setting expectations of high rigor and quality (Prensky, *Teaching Digital Natives* 13). This pedagogy uproots the teacher from the position of setting an authoritarian, singular path to the "right answers" and instead puts the teacher in the position of guide, resource, and mentor while opening the door for students to engage in many different, unscripted learning opportunities in the pursuit of a project the student is interested in. Prensky summarizes this pedagogical shift with this rhetorical question:

> *Which of the following would you prefer: that I say, "There were three causes of [whatever I will now lecture and tell you what they were-please take notes;' or that I say, "There were three main causes of [whatever]. You all have 15 minutes to find out what they were, and then we'll discuss what you've found." To nobody's great surprise, whenever students are asked this question they almost universally prefer the second alternative. Most of today's students, no matter what their age or grade level, prefer to take an active role and find things out for themselves, rather than be told them by the teacher. (Prensky,* Teaching Digital Natives *14)*

In "partnering" pedagogy, the classroom becomes a site of affinity spaces as the students explore and build expertise in an array of different texts, genres, tools, and resources:

> *I have watched different groups of students in a class simultaneously using video, audio podcasts, games, blogs, and other social networking*

tools to answer the same guiding question posed by the teacher. Such

guiding questions . . . could range from "How would you like your teachers

to use technology in class?" to "How do people persuade each other?" to

"What is the evidence for evolution?" (Prensky, Teaching Digital Natives

19)

In doing so, they form communities that function much like fan-based affinity spaces on the net function: they become audience and inspiration for each other, gather information, teach and share with each other, and build resources for themselves, their classmates, and even the teacher for future classes. This is a pedagogy that speaks more to how the world works in the information age. Here in the age of Wikipedia and Google, the most important form of literacy is not in holding information, but in knowing where the information is; in knowing how to ask questions, use tools, research, and work with the information. Prensky argues similarly, stating that this pedagogy is leads to learning that is "real, not just relevant" (Prensky, *Teaching Digital Natives* 4) in that it gets students using real research tools to gather real knowledge on real projects that they would produce, share, and work on in the after-school world. Indeed, this, Prensky argues, is the "21st century way of working together;" it's a pedagogy of "teaching for the future" (Prensky, *Teaching Digital Natives* 5).

The environment of creation is best made visible when one thinks about the kinds of engagement that can happen in videogames. Gee and Hayes point to high level work that occurs in and around game environments. As students engage in "theory crafting" (Gee and E. R. Hayes, *Language and Learning in the Digital Age* 85) they participate in wikis of thousands of pages of calculations, theory, optimization, and organization. This is "system thinking—being able to think

about and work with others to deal with complexity and complex systems" (Gee and E. R. Hayes,

Language and Learning in the Digital Age 73) and, they argue, shouldn't be discounted from being

"real" learning, work or thinking simply because they're rooted in game culture: "Should we

bemoan that these skills are being applied to a 'play' system and not a "real world" one" (Gee and

E. R. Hayes, *Language and Learning in the Digital Age* 85)? In fact, "These players are developing

and using technical, technological, scientific, mathematical, research, analysis, collaboration, and

argumentative skills that are the skills we hope people develop in school and that are central to

work and life in the global, high-tech, complex-system-ridden twenty-first century" (Gee and E. R.

Hayes, *Language and Learning in the Digital Age* 85). By the nature of this passion-driven space,

work within it becomes more and more complex as the student, guided by greater and greater

rewards from both her growing revelation and control of these systems and from the surrounding

community, achieves a greater and greater state of expertise.

This progression is mirrored in Mimi Ito's model of *Hanging Out, Messing Around, and

Geeking Out*. The game invites interest, exploration and passive play; this is the "hanging out"

phase of this system. It's a space where people will, on one form of media or across multiple

forms, will be quickly drawn in and will be able to explore in "low-stakes" environments:

> *The layering of media and social interaction is part of the changing media*
>
> *ecology that you can have it, where they are in persistent touch with*
>
> *friends and intimates through networked communication while*
>
> *accessing popular and commercial media in varied settings. The social*
>
> *desire to share space and experiences with friends is supported now by a*

networked and digital media ecology that enables these fluid shifts in

attention and copresence between online and off-line contexts. (Itō 50)

As kids are drawn deeper into these environments, they begin to become aware of the
possibilities and limitations of working and sharing within the system, in the "messing around"
phase. Ito explores this phase as facilitated by the possibilities of the convergence culture of the
Internet:

Because of the ease of copying, pasting, and undoing changes, digital

media production tools also facilitate this kind of experimentation. The

availability of these tools, combined with the online information

resources just described, means that youth with an interest and access

to new media now possess a rich set of tools and resources with which to

tinker and experiment. (Itō 58)

The game challenges the player as she discovers the goals, rules, and limitations. Then, finally, the
game serves as canvas for engaged study in coding and modding to break the rules and expand
or reshape the game to the player's desires (Itō 71). In this phase, kids are drawn into the deepest
levels of involvement in these environments and swap "hats" between reader, writer, amateur,
and expert:

It is important to note the nonstatic nature of the techie mentor; the

status of taking mentor is relative to the knowledge of others within a

social context. The significance of the techie mentor is that he or she

> *provides information to others without implying absolute expertise. You*
>
> *get drawn in by a personal interest or problem, develop expertise, and*
>
> *mentor others. (Itō 60)*

Ito, like the others, reinforces the idea that this high-level work that students engage in in post-school, recreation-based, or even virtual environments is *real* work. It leads to development that will actively "cross over" into "real world," professional settings that demand an academic level of expertise and literacy:

> *The dispositions being developed in World of Warcraft are not being*
>
> *created in the virtual and then being moved to the physical, they are*
>
> *being created in both equally . . . these players are learning to create new*
>
> *dispositions within networked world's and environments which are well-*
>
> *suited to effective communication, problem solving, and social*
>
> *interaction. (Thomas and Brown, qtd. in Itō 219)*

Cynthia Davidson, Ian Bogost, and Sasha Barab have contributed important ideas to help forward the understanding that games are more than a simple distraction for kids. Davidson explores the game as a site which sets a stage of possibilities which are then lived and experienced by the player. The resulting experience arrives out of the combination between the game's world and the player's actions. The game world, and the surrounding worlds of passionate-affinity-based resources and fandom, become sites of deep engagement that lead to development and learning on multiple levels:

Consider Pokémon, for example. A five-year-old masters the equivalent of the third grade reading vocabulary in order to play online and also customizes the game with digital graphic tools that, only a generation ago, would have been considered sophisticate for professional designer. That five-year-old makes friends online through gameplay that requires memorizing hundreds (the number expands every day) of characters with different attributes and skills and learns how to fix, customize, program, or hack a computer in order to participate in this compelling online world of play. You do not have to force a child who is interested in Pokémon to practice at the computer. Technical skills, programming, literacy, socializing, aesthetics and design, narrative making, socializing, and fun are woven together, and, for many preschoolers, the only brake is the parent who worries about the child spending too much time (or money) on Pokémon. **(Davidson and Goldberg,** The Future of Thinking *21)*

Davidson and Goldberg explore examples of how situating these game-based worlds in the classroom can lead students into deep learning environments across subjects. Students are given assignments to make, modify, or "re-skin" games that can speak to issues of "nationalism and inequality," and have students practice skills ranging from "aesthetic design, narrative construction, interactive storytelling, storyboarding to systems analysis, the logic and rules of games, programming and computing skills, and intellectual-property challenges," as well as skills that extend "across social and economic [fields], in working with others, being held to timelines,

thinking about budgets, [and negotiating] multimedia" (Davidson and Goldberg, *The Future of Thinking* 63). In this sense the game manifests new results with its dynamic relationship between *reader*, who is engaged in "performative play" (Davidson and Goldberg, *The Future of Thinking* 63) and *text*, which functions as a world that reacts to her choices.

Ian Bogost's concept of "procedural rhetoric" resonates here. He shows how certain games can function to give a rhetorical argument not by engaging in direct narrative, but by having the player learn the world that she is playing within and the systems that control it. In the game "September Twelfth," for example, the player is presented with a Middle-Eastern town and is told to eliminate the terrorists found walking about alongside civilians. By clicking on the screen, an explosion occurs. A player may at first attempt to eliminate the terrorists by clicking on them, but will soon learn that every click will necessarily involve the death of innocent civilians. This will galvanize the citizenry and the player will quickly find more terrorist units walking around and fewer citizens. If, however, the player does not click anywhere, does not bomb the town, the player will see that number of terrorist units slowly dwindle away (Bogost 98). The lesson here is simple and straightforward, but, unraveling through the process of play, it carries a powerful and interactive affect. Bogost argues that students who learn to read and write "procedural rhetoric" will become familiar not just with the "presentation of traditional materials," but with "the computational underpinnings of that presentation" (Bogost 28). Procedural rhetoric situates the tenants of rhetoric—of finding available means of persuasion—within *worlds* and *systems*, finding a rich array of communicative and relational possibilities possible in the interaction between the author, the author's world, and the player's attempts to read, explore, understand, manipulate, and even subvert that world. It involves a deeper understanding of the concept of "play," not as

an idle waste of time, but as an active, thoughtful, critical process, as "the free space of movement within a more rigid structure" (Zimmerman, qtd. in Bogost 42).

Sasha Barab's *Quest Atlantis* is also designed to educate the player not through direct narrative but by having the world react naturally and organically to the player's choices. In a unit about Frankenstein, for example, players are situated in Mary Shelly's world, built within *Quest Atlantis*. They interview townspeople, learn about Doctor Frankenstein, and eventually find themselves in a position to have to make choices, with the health of the city, the life of the monster, and many other factors visibly affected by the results of their choice:

> *Accountability is not based on an external test, but on the consequences*
>
> *of one's choices. In this context, students learn how to investigate and*
>
> *pose solutions—and they learn what it means to be historians, scientists,*
>
> *or mathematicians. Students often find a passion for curricular content*
>
> *and begin to see themselves as capable of solving interesting problems.*
>
> *We believe this kind of approach truly ensures that no child is left behind*
>
> *because it offers students opportunities to engage with curricular*
>
> *content and appreciate that content's value. As part of our Quest Atlantis*
>
> *project (see www.QuestAtlantis.org), we have designed hundreds of*
>
> *gaming activities to teach disciplinary content, which have been used by*
>
> *thousands of children around the world. Through our study of students'*
>
> *practice, we have developed a new theory about how students best learn.*
>
> *What we seek to foster in students is something we call transformational*

play. (Barab, Gresalfi, et al., "Why Educators Should Care About Games"

1)

The game, when coupled with good discussion and ample writing, leads to critical thinking about racism, economics, and history. There are plenty of other games out there that can create powerful and memorable experiences which will lead to reflection and discussion that would fit in easily with many learning objectives. *Papers, Please*[1], for example, puts the player in the shoes of a border-crossing immigration officer who has to examine the documentation of a line of desperate immigrants and determine who gets to go through and who does not. The player has to make hard choices, and the fate of the player's character also hangs in the balance.

Although these games can be host for powerful and dynamic experiences, in some ways they are limited in that they can only display the possibilities that the author of the game allows for or is able to conceive of. With these games, the work that really achieves the explosive, self-driven, creative potential that we are looking for often occurs in a meta-layer, external to the game, in the collaboratively driven communities that produce mods, guides, strategy discussions, etc. What interests me more as a teacher is not (just) the experience of playing the game—though that alone can be very effective—but instead the experience of *making* the game. It is much rarer that a game serves as an environment that allows this kind of creative, connected work to happen within the game itself, made with the materials of the game's world. Though rare, these games do exist, with Minecraft and Second Life coming most readily to mind. Both of these games are open-world games that allow a player to create a character, explore collaboratively, and then,

[1] http://papersplea.se/

after learning how the world works and how to manipulate the materials within the world, the player can then build within and expand the world. However, Minecraft and Second Life, in their movement away from text and to 3D, virtual worlds, lose the benefits of textuality that informed a rush of research in hypertextual potential that surrounded the rise of text-based games and virtual spaces. In the writing class, we would benefit by looking back at those theories in light of contemporary theories on games-based pedagogy and connected learning, and reconsidering the place of the text-based virtual environment in the writing classroom.

I would like to take that idea and expand it in creating my central argument: in order to create a 21st century pedagogy of learning experiences that inspire the engaged, constructive, dynamic, and empowering modes of work we see in online creative communities, we need to focus on the platforms, the environments, the *microworlds* that host, hold, and constitute the work. The quality of the platform determines the possibilities of the work created within it; a good platform can naturally scaffold a student through the processes of hanging out (exploring the world, socializing within the world, playing within the world), messing around (interacting in the world, carving a niche within the world, understanding how the world works), and then geeking out (using the materials of the world to extend and rewrite the world). A good platform can build connections between users, allowing for the creation of a community, giving creative work an engaged and active audience. A good platform functions as a "third space," neither an appropriation of student spaces nor a re-creation of traditional educational environments. A good platform can, finally, house and protect the work within it, allowing control over the scope of the audience, ranging private "worlds" only a classroom might have access to, to being fully distributed across the web or even being published.

We need more platforms that are designed to facilitate the tenets of playful, bottom-up constructionist work and affinity space passion. They should be open-source and user-moddable. These platforms will work together to build networks of rhetorical/creative possibilities, wherein students can learn to cultivate their voices, skills, and knowledge bases as they engage across platforms and genres. I call on others to make, mod, or hack other new platforms.

In applying this argument to my subject, teaching writing in a college composition class, I describe "Microworld Writing" as a genre that combines literary language practice with creativity, performativity, play, game mechanics, and coding: students engage in class topics by writing / writing within worlds. The MOO can be an example of one of these platforms and of microworld writing, in that it allows for creativity, user agency, and programmability, if it can be updated to have the needed features (virtual world, community, accessibility, narrativity, compatibility and exportability). I offer the concept of this "MOO-IF" as inspiration for a collaborative, community-oriented Interactive Fiction platform, and encourage people to extend, find, and build their own platforms. Until then and in addition, students can be brought into Microworld Writing in the composition classroom through interactive-fiction platforms, as part of an ecology of genre experimentation and platform exercise.

In short, I build my central pedagogy by combining Prensky's concept of teaching via "partnering" with students on passion-driven projects and look to situate this kind of work in virtual and actual co-constructed environments and platforms in a pedagogy of text-based worldbuilding. In Chapter Two I engage in lit reviews in pedagogy, rhetoric/composition, digital writing theories in the 1990s, and social media in the classroom, in order to set the disciplinary context for this argument, which is a rhet-comp and pedagogical conversation that starts with

Current-Traditionalism and arrives at a call for a post(e)-pedagogy composition that educates for work in a digital culture. I situate the need for my argument by, one, exploring the dangers and consequences of the traditional pedagogical assumptions we still carry as standard in the school system, and, two, by revealing the gaps in the current pedagogical arguments about digital / social technology, and (re)establish the experiments, theory, and arguments made popular in the '90s with MOOs and constructionism. I land, ultimately, on an argument for a constructionism-informed view of multimodal writing as traversing a reading, playing, writing, creating, and making spectrum, with student-centered experiences as the primary engine.

In Chapter Three I explore conversations revolving around the modern state of the digital generation in today's modern remix, gaming, networked culture. I explore online creative behavior with a framework of network theory, collective intelligence, affinity spaces, and knowledge communities to establish arguments for the pedagogical value of networks, collaboration, and play. In doing so I will anticipate criticisms that problematize—with good reason--technology-based pedagogies with considerations of class-based inequity, digital divides, and corporate control. My response will be to show how this pedagogy can be localized in the classroom, separate from corporate control, and even engaged in without the use of any technology; affinity spaces can be built in non-digital environments. I will show that with student-centered, interest-driven, playful, collaborative work, students at any level of technological or cultural expertise will learn, work, and grow.

In Chapter Four I explore video game and virtual world ecologies through games. I move into gaming theory, ludology, ludonarrativity, and procedural rhetoric to explore games as sites

for passion, flow, experiences, and opportunities for writing, about, within, and through making of games.

In Chapter Five I return to the MOO, reflect on its pedagogical potential, and restate my call for a pedagogy of worldbuilding, ending with the need for effective platforms. I move into my argument that platforms can become spaces for research into and actualization of a unified and protected generation of this kind of work, and the MOO, married with a platform of Interactive Fiction, can serve as example of this. I describe and explore the MOO-IF I will have made as part of this dissertation project. I engage in a description and run-through of the MOO, the choices I made in creating and modernizing it, and how it functions. I explicate the values central to its construction: the ideal platform is gameful, collaborative, and modular/exportable. Finally, I seek to show text-based worldbuilding in pedagogical action and give my audience a concrete idea of how they can use this MOO, and other such platforms, in their classroom.

CHAPTER 2: COMPOSITION PEDAGOGY

In this chapter I explore a conversation of important contributions to the field of rhetorics, communication, and pedagogy in the hopes of arriving, eventually, at a pedagogy that is informed by all of them and aims at a modern generation of students that engage in learning through digital work, communication, and play. Ultimately, I will argue that a teacher should be a bricoleur, functioning best when she pulls threads from multiple conversations across eras and fields to weave a tapestry of effective teaching. This chapter, then, will consider ideas from a loosely chronological exploration of conversations in rhetorics and pedagogy and consider common/compatible points to end at a space where these threads can be used in the formation of my own "microworld" pedagogy. I land, ultimately, on an argument for a constructionism-informed view of multimodal writing as traversing a reading, playing, writing, creating, and making spectrum, with student-centered experiences as the primary engine.

I begin with "current-traditionalism," the stasis of assumptions about what teaching should look like and how writing should be taught. In this exploration of "current-traditionalism," I use the word "stasis" to describe a solidified basis of teaching assumptions: this is a centuries-old series of teaching procedures that is commonly understood to be how teaching should function, especially by outsiders to the field, but, unfortunately, as I will show, still understood by teachers all over the country. In exploring this term, I am focused in particular on the teaching of writing at the college level. However, I would point out that in many ways current-traditionalism extends beyond writing and forms the basis of teaching assumptions across disciplines. I would also point out that later pedagogies, including the pedagogical approach I will land on, while also

focused in particular to the teaching of writing, strongly applies to effective teaching across disciplines and grade levels.

Coined by Daniel Fogarty and well defined by Richard Young and James Berlin, current-traditional rhetoric is a regimented and systematic approach to teaching writing. The emphasis of this writing pedagogy is on the product; a paper is formulaically written, conforming precisely to the expectations of Standard Academic English with no grammatical errors. Each paragraph is written according to structure: the topic sentence must be first and must be clear, following sentences support it. Students are lectured through a static procedure of writing, with solid and unchanging rules about structure and style. As Young writes in *Paradigms and Problems*:

> *The overt features . . . are obvious enough: the emphasis on the composed product rather than the composing process; the analysis of discourse into words, sentences, and paragraphs; the classification of discourse into description, narration, exposition, and argument; the strong concern with usage (syntax, spelling, punctuation) and with style (economy, clarity, emphasis); the preoccupation with the informal essay and the research paper; and so on. (Young 31)*

In current-traditional writing pedagogy, the focus is on the *product* and not the *process* of writing. Prewriting exercises are used only through the creation of outlines which will form the unchanging skeleton of the final piece. The philosophy of this position is one of external objectivity: built on the idea that the observable world is a static reality that is either correctly represented or incorrectly represented, the composing process must be actively taught; students either engage

in the correct writing procedures, and succeed, or they do not, and fail. The things they write do not change through meditation, development, or context. As James Berlin describes:

> *For current-traditional rhetoric, reality is rational, regular and certain - a realm which when it is not static is at least in a predictable, harmonious, symmetrical balance. Meaning thus exists independent of the perceiving mind, reposing in external reality. Knowledge is readily accessible because of the consonance between the world and the faculties of the mind. Since reality is rational, it is best apprehended by the understanding. (Berlin and Inkster 2)*

Knowledge comes from "out there" (Berlin and Inkster 3), to be seen, correctly understood, and faithfully transcribed, rather than through an internal, relative, developmental process.

In *Pedagogy of the Oppressed*, Paolo Freire describes current-traditionalism as an "essayistic literacy" that relies on a standardized, one-size-fits-all concept of education (Freire 72). Freire traces out how the assumptions of the dominant pedagogical paradigm fail not only to educate but function to reinforce power inequities: education becomes an "instrument of oppression." In this "banking concept of education:"

> *The teacher talks about reality as if it were motionless, static, compartmentalized, and predictable. . .His task is to 'fill' the students with the contents of his narration—contents which are detached from reality, disconnected from the totality that engendered them and could*

give them significance. . .The student records, memorizes, and repeats

these phrases without perceiving what [it] really means. . .it turns them

into 'containers,' into 'receptacles' to be 'filled' by the teacher. (Freire 72)

Within the isolated void of the classroom, information is given without context to the wider environment nor consideration of the context of the student. This information will not be well-retained by the student. It certainly won't serve to transform the student for any emancipatory potential. This, Freire argues, is by design: the holders of this paradigm have no desire to subvert it and the power it offers: "The capability of banking education to minimize or annul the students' creative power and to stimulate their credulity serves the interests of the oppressors, who care neither to have the world revealed nor to see it transformed" (Freire 72).

Compositionists through the decades have had no trouble offering specific names as champions of current-traditional rhetoric; one of the most common/notorious is E.D. Hirsch and his *Dictionary of Cultural Literacy*, with editions for both adults and children, as explored by critical writing theorist Patricia Bizzell. Drawing from psychology and psycholinguistics, Hirsch's prescriptive works lie on the argument that Standard Academic English rises "above mere ideology" (Bizzell 130), as in, it's not right simply because it's what dominant culture uses, but that it is "cognitively superior" to other languages; by nature of its structure and construction, it is inherently a better, more cognitively rich, efficient means of communication. An individual's potential, then, "can only be thoroughly developed through cultivation in the most cognitively rich and efficient means of communication", which is Hirsch's current traditionalism (ibid.). Bizzell counters this by challenging the assumption that Hirsch's "cognitive" defenses ignore "the function of historical context in establishing the privileged language and discourse. . . they also

attempt to detach a student's 'creative potential' from his or her particular historical circumstances" (Bizzell 131), which is not easily done. Each student comes from a rich context of personal experiences, education, and thought processes, and will not traverse the road to mastery in the same way.

Intertwined and constituted by these structures of power, current-traditionalism affirms and reinforces the system itself. Sharon Crowley shows that current-traditionalism is cheap and 'teacher-proof;' as a pedagogy that requires only feeding the correct procedures and grading only for correctly worded and structured products, the teaching of writing can be outsourced to inexperienced, low-paid teaching associates and adjuncts:

> *And if the theory of composition used were highly formalized, the work*
>
> *of grading papers could be simplified, since harried teachers could ignore*
>
> *the content of their students' themes and would only need to assess the*
>
> *degree of their conformity to the formal features prescribed by the*
>
> *lectures and the textbook. Students needed only to demonstrate that*
>
> *their writing conformed to standards that had been devised as measures*
>
> *of their work before they ever set foot inside the academy. But herein lies*
>
> *an irony. Of all the subjects commonly taught in university curricula,*
>
> *composition is no doubt the skill least amenable to standardized*
>
> *instruction. (Crowley 136)*

The grading process is simple and streamlined: because writing in this pedagogy is seen as a procedure of accurate reflection of reality, students either know the information and are able to orderly transcribe it, or they do not. Students are graded on their conformity:

> *Current-traditional discourse theory, on the other hand, painted listeners and readers as curiously docile. They were never hostile or inattentive-they were just interested. Writers needed only to arrange their discourse, then, in a fashion that would ease the reading process-that would, in fact, reflect the way any reasonable person might have written it, according to the natural dictates of the rational mind. (Crowley 122)*

The power system, here, enacts a self-reinforcing effect on the students: those who have grown up exposed to the body of knowledge, literature, and conceptual organization that we consider universally correct and "natural" have no trouble producing the kind of thinking that current-traditional composition looks for. As Burnham points out:

> *Current-traditional teaching emphasized academic writing in standard forms and "correct" grammar. It reinforced middle-class values, such as social stability and cultural homogeneity, in support of the meritocracy associated with the military industrial complex. Current-Traditional rhetoric assumed the gate-keeping role class and economics had previously played, making sure that these veterans, whether supply sergeants, tank mechanics, sailors, flyers, or infantrymen, could write easily enough to pass the courses and subsequently meet the*

engineering, production, and managerial needs of the prosperous

postwar American society. (Burnham 22)

But students who do not have access to that body of assumptions and knowledge, students with, perhaps, a different set of cultural, historical, and social understandings, are seen as inept and/or lazy; they are failed, the gates of advancement closed to them. These educational values live on to plague traditional ideas of pedagogy in our own country, resulting in nationwide consequences. Crowley points out that this rhetoric is still being used in writing classrooms, serving political but not educational purposes:

Recent studies of college writing programs suggest that current-

traditional rhetoric is alive and well. At least half of such programs in the

country-perhaps more-follow its pedagogy. Current-traditional textbooks

are still being published; most go into at least two editions, and many

enjoy five or six . . . There are an estimated thirty-three thousand

composition teachers in this country. If half of them use current-

traditional pedagogy, whether by choice or through institutional

mandate, and if each of them is assigned one hundred students (a

conservative estimate), something more than a million and a half

students are introduced to the principles of current-traditional rhetoric

every academic semester. . .Surely its very success indicates that current-

traditional rhetoric works. My answer to this is simple: yes indeed, it

works. But its work does not lie in teaching people how to write. Rather,

current-traditional rhetoric works precisely because its theory of invention is complicit with the professional hierarchy that currently obtains in the American academy. (Crowley 139)

Davidson and Goldberg mark that the "United States currently ranks 17th among industrialized nations in the educational attainment of its populace" (23), with pedagogical values that are deployed through standards-driven initiatives such as the No Child Left Behind Act of 2001:

With its lockstep national standards and standardized testing, where school districts are penalized with reduced funding if students do not perform to a certain level ... NCLB rewards teachers for teaching to the tests. National standards and assessments have replaced other measures of learning, including those gauged by classroom teachers themselves. (Davidson and Goldberg, The Future of Thinking *22)*

Davidson and Goldberg believe that we have to reconsider prioritizing "individualized performance in assessments and reward structures," which serve only to "wade down and impede new learning possibilities" (Davidson and Goldberg, *The Future of Thinking* 52). If we don't heed the call for change, we "continue to push old, uniform, and increasingly outdated educational products on young learners at their—and, by implication, society's—peril" (Davidson and Goldberg, *The Future of Thinking* 24).

However, it needs to be made clear that current-traditional teaching is not a single, encapsulable position. Robert Conners argues that current-traditional rhetoric, here shortened to

"C-T rhetoric," is a force, a "palimpsest of theories and assumptions stretching back to classical antiquity" (Connors 208). After a study of current-traditional composition textbooks over the decades, Conners concluded that through the decades it ebbs as new pedagogies make their claims and then flows with vengeance as "back to basics" approaches strike society. This can be seen most clearly in the movement from a 1950's traditionalism, to a 1960's and 70's burst of process-based focus of invention, and then back to tradition:

> After 1967, the cry for relevant education grew stronger and stronger, becoming by 1969 almost a backdrop chant to the college experience, and the educational structure was shaken deeply. This was perhaps the only time in the past thirty years when C-T rhetoric itself seemed in danger of losing coherence. . . . But with the end of the sixties, changes again began to be felt-and were felt first in college admissions offices. For the first time, in 1971, colleges received fewer applications for admission than they had the year before. The post-WW II baby boom was ending, and with its ending came a new age of scarcity. . . . C-T rhetoric had hung on through the "radical" years, and by 1972, the world was once again looking at traditional methods without a sneer. As Robert F. Hogan put it, composition teaching was being "wrenched out of the age of Aquarius and thrust into the age of accountability." (Connors 212–13)

It, he warns, will never "wither away" or be overthrown. It must be supplemented, because it will not be supplanted:

Alas for my original thesis, I found something more complicated than the

static collection of outworn falsehoods that I had identified as the enemy.

Looking at McCrimmon through its history, I found a pedagogic struggle

between stasis and change that, in the case of WP, resolved itself in favor

of stasis only after a number of considerable changes. I found that the

text was a witness to the perpetual conflict between old and new, theory

and practice, experiment and convention that defines our discipline in a

unique way. [. . .] C-T rhetoric will never, can never, merely "wither away"

or be overthrown as many of us dreamed it might be in the sixties and

the early seventies. C-T methods will always be the armature upon which

change is shaped, and historical study of textbooks […] has convinced me

that the most effective approach to C-T rhetoric for those who wish to

improve the teaching of written discourse is supplementation, not

supplantation. (Connors 219–20)

Still, overthrow it they've tried. An early antithesis to current-traditional pedagogy is "process pedagogy." According to Lad Tobin, process pedagogy is anti-establishment, anti-authoritarian, and anti-inauthenticity. This is described as a backlash to the dull, structured writing of the previous paradigm:

Process teachers did not hate all written products; they only hated the

kind of written products they claimed the traditional process inevitably

produced--the canned, dull, lifeless student essay that seemed the logical

outcome of a rules-driven, teacher-centered curriculum that ignored

student interests, needs, and talents. (Tobin 4–5)

In process pedagogy, the focus is on the student's "real", "authentic" voice, which comes to be known through an extended and deep process of pre-writing, freewriting, reflection, and revision. This is a pedagogy that promoted instead of suppressed the student's individual culture, context, interests, needs, and talents. "These ideas," Tobin writes, "that students actually have something important and original to say and will find ways to say it if we can just get out of their way, give them the freedom to choose their own material, and show them that we are interested--run throughout early process pedagogy" (Tobin 5). Found under the umbrella of process pedagogy is "expressivism," the valuing of discovering one's "expressive" voice. Christopher Burnham defines expressivism as a pedagogical system that assigns the "highest value to the writer and her imaginative, psychological, social, and spiritual development" (Burnham 18) using journaling, freewriting, reflective writing, and small-group exercises all in the pursuit of finding and developing the writer's voice: "This presence—'voice' or ethos-- whether explicit, implicit, or absent, functions as a key evaluation criterion when expressivists examine writing" (ibid.).

Expressivism may best be described by Peter Elbow. The concept of writing as a simple and straightforward translation of "meaning into language," he argues, is troublesome, difficult, and backwards; writing instead should be seen as a developmental process:

That's why it causes so much trouble. Instead of a two-step transaction

of meaning-into-language, think of writing as an organic, developmental

process in which you start writing at the very beginning-be-fore you know

your meaning at all-and encourage your words gradually to change and

evolve. Only at the end will you know what you want to say or the words

you want to say it with. (Elbow 15)

 In the beginning of the writing process one doesn't have to know exactly where one is going. A writer writes, thinks, and works through the writing process, and as she does so, the writing, and thinking, develops and evolves. Elbow argues that the preoccupation with "correct" writing hampers the writing process, producing stilted, "dead" language and frustrated students:

The habit of compulsive, premature editing doesn't just make writing

hard. It also makes writing dead. Your voice is damped out by all the

interruptions, changes, and hesitations between the consciousness and

the page. In your natural way of producing words there is a sound, a

texture, a rhythm-a voice-which is the main source of power in your

writing. (Elbow 6)

Instead, Elbow proposes that one writes, and writes copiously, unconcerned with stylistic concerns or of "correctness." In the "freewrite," for example, Elbow teaches that one should just write, nonstop, for a set amount of time (Elbow 9). The writer can veer off track, can make mistakes, can even find herself at a loss for words, but is to keep writing. Freewrite after freewrite, the writer will find herself and her ideas developing; the terror of the blank paper finally broken, the ideas in movement:

It boils down to something very simple. If you do freewriting regularly,

much or most of it will be far inferior to what you can produce through

care and rewriting. But the good bits will be much better than anything

else you can produce by any other method. (Elbow 9)

Later in the writing process, Elbow describes exercises such as the "center of gravity" (Elbow 35), where a writer looks through her words for core ideas that seem to resonate, that seem to draw gravity through the rest of the writing. These, he teaches, are the centers that will form the next run of writing. Elbow promotes copious writing that can and will be thrown out, revised, and rewritten. Because writing is seen as such an arduous and plodding process by many inexperienced writers, he finds that once they produce anything, they are hard-pressed to change it, much less throw it out, turning in writing that has only seen its first stage of development. Advanced writers, he points out, adopt an "easy-come, easy-go" position on writing, writing copiously and prolifically, letting ideas gain strength through each act of revision and rewriting (Elbow 39).

Later approaches to writing pedagogy criticize expressivism for being an overly internal process, arguing that reflection can only take a student so far in her thinking without being exposed to others' ideas and contexts. For example, according to Christopher Burnham's accounting of this paradigm, James Berlin and other social rhetoricians "view expressivism's primary flaw as a false and otherworldly epistemology of the self that privileges individualism and rejects the material world" (Burnham 28). These are important points, but I'd like to point out that Elbow's pedagogy can encourage communication and social influence. He taught numerous strategies for engaging in communication about writing with others, promoting the development

of the voice via communication with the audience. Exercises such as "Movies of a Reader's Mind" (Elbow and Belanoff 85) for instance, ask a reader to write out everything that she is feeling in response to each section of the writing—how is she reacting to this idea, that idea, and why; and "Believing and Doubting" (Elbow and Belanoff 147) challenges a reader to write an in depth response either "believing" the paper, encouraging the author and adding her own knowledge and input the strength the claims, and/or "doubting" the paper, pressing and challenging the claims, prompting a new draft reinforced with the other's ideas, challenges, and viewpoints. Through all of these exercises, the concept of evaluation develops rhetorically through a reader's response, reactions, and context, rather than from hierarchically prescribed assumptions of what is "right" and "wrong" in writing.

Still, following waves in composition theory, such as the "postprocess theorists," as described Tobin, argue that expressivism was too much an over-reflective, internalized process that privileged individualism, assumed a naïve and romantic concept of "inner truth," and failed to adequately account for the social construction of knowledge or language, nor the rich and conflicting discourses of varying contexts or the social and political problems in the world. Lester Faigley finds expressivism's "romantic view of the self" to be "ineffectual in postmodern times," whose "concern with the individual and authentic voice directs students away from social and political problems in the material world" (qtd. in Burnham 28). Postprocess theorists argued that expressivism offered no content; a student could think and reflect all she wants, but without research, communication, and interaction with real societal conversations, the student will not develop or contribute meaningfully with her writing.

The scholars who argue for critical pedagogy directly address these concerns. If we are to educate effectively, they argue, we need to teach our students critical awareness in the structures that situate and control them. By asking students to think, write, and communicate about these forces of power, we encourage students not only to grow as thinkers but to participate through their writing in work that challenges the system, emancipates, and empowers them. These scholars speak directly to the view that current-traditionalism functions not only as ineffective pedagogy, but is structurally designed to enforce systemic complacency and hegemony. Here I return to Paulo Freire's explication of "the banking concept of education." Freire argues that knowledge emerges only through conversation, invention, and engagement with fellow students and the instructor in consideration, dialogue, and debate about the world around them and the structures that control and constitute it. The goal of the teacher, Freire believes, is to engage in "conscientizacao," or critical consciousness. As Freire writes in *Pedagogy of the Oppressed*: "Intervention in reality—historical awareness it-self—thus represents a step forward from emergence, and results from the conscientizacao of the situation. Conscientizacao is the deepening of the attitude of awareness characteristic of all emergence" (Freire 109). Teachers, Freire argues, must be "partners" with the students, posing problems to be considered and discussed, and modelling and effecting critical awareness:

> *A revolutionary leadership must accordingly practice co-intentional*
> *education. Teachers and students (leadership and people), co-intent on*
> *reality, are both Subjects, not only in the task of unveiling that reality,*
> *and thereby coming to know it critically, but in the task of re-creating*
> *that knowledge. As they attain this knowledge of reality through*

common reflection and action, they discover themselves as its permanent

re-creators. In this way, the presence of the oppressed in the struggle for

their liberation will be what it should be: not pseudo-participation, but

committed involvement. (Freire 69)

Freire's critical approach is built around the idea that not only do traditional conceptions of education disempower the student, but that they are fundamentally ineffective modes of education. The idea of a singular, approved, stagnant body of "correct information," delivered from on high from the "ivory tower," will not lead the student to development nor engagement with the world; the power positions of traditional education block the effective transfer of knowledge:

Only through communication can human life hold meaning. The teacher's

thinking is authenticated only by the authenticity of the students'

thinking. The teacher cannot think for her students, nor can she impose

her thought on them. Authentic thinking, thinking that is concerned

about reality, does not take place in ivory tower isolation, but only in

communication. If it is true that thought has meaning only when

generated by action upon the world, the subordination of students to

teachers becomes impossible. (Freire 77)

Freire's "Problem-Posing education" focuses on *consciousness* rather than the concept of the transferal of information (Freire 79), where students "develop their own power to perceive critically the way they exist in the world; . . . they come to see the world not as a static reality, but

as a reality in process, in transformation" (Freire 83). Through this education, students are made to learn not a static body of correct answers but of dynamic conversations, issues, and factors of a reality that is constantly developing. Students learn to situate themselves within these issues, learning how to read and speak to these conversations, and becoming self-aware as agents. Ultimately, Freire argues that the "banking education treats students as objects of assistance; problem-posing education makes them critical thinkers" (Freire 83).

Similarly, Michael Apple describes how hegemonic ideas and structure are saturated into our society, controlling our understanding and values in our culture and how we understand others. These assumptions, seen by culture as "natural" products of "good taste" and "common sense," privilege the thinking of some students and frame other students as wrong or ignorant. The current-traditional approach, and other pedagogical approaches that try to standardize education and enforce the same thinking, the same "right" answers from all students, will implicitly favor the students who have the racial and/or class advantage of being raised with this "cultural capital" (Apple 44). Apple argues for an awareness of this cultural capital and for how the educational apparatus is implicit in and even re-creates it, to the benefit of some and the detriments of others: "Schools, hence, are also agents in the creation and recreation of an effective dominant culture. They teach norms, values, dispositions, and culture that contribute to the ideological hegemony of dominant groups" (Apple 15). They exist not just in explicit, "global sets of interests," but are "embodied by our commonsense meanings and practices" (Apple 139). In order to work against these assumptions, Apple argues for direct teaching and challenging of cultural meanings, norms and assumptions, collaboratively:

Altering that emphasis as much as is possible, focusing on joint activity --

-- even if only on such simple things as reports, papers, inquiry, collectively

produced drama, art, and so on -- is not insignificant. This can and should

be made an overt element in the content as well, where the

demystification of the 'great man' theory of history, science, etc. is so

necessary. One can stress the contributions of groups of real working

people acting together as an organizing principle here. (Apple 164)

Ira Shor recommends, in response to these concerns, an "empowering" and "participatory" pedagogy that focuses on posing problems in dialogic and democratic conversations, encourages research, awareness of systemic power, and the "desocializing" of societal assumptions, and is multicultural and democratic (Shor 17). By having students co-develop the course and have say in the issues that are worked with and the structures that control them, students begin to feel empowered enough to take personal interest and autonomy in their education:

To reverse this passive experience of learning, education for

empowerment is not something done by teachers to students for their

own good but is something students codevelop for themselves, led by a

critical and democratic teacher. Participation from the first day of class

is needed to establish the interactive goals of this pedagogy, to shake

students out of their learned withdrawal from intellectual and civic life.

That learned withdrawal evolves in traditional schooling as students

spend thousands of hours hearing lectures, instructions, rules,

interpretations, information, announcements, grade reports,

exhortations, and warnings. Many withdraw from intellectual work

because they are told so much and asked to think and do so little. (Shor

20)

More effective learning, Shor argues, comes when students are engaged in an "active and creative process" that they can take ownership of. Shor establishes in his classes the importance of dialogue and works to promote the agency of the students and their voices. Many teachers are familiar with feeling frustrated at classes who don't care to participate in class; they don't answer questions, they don't "speak up." As Shor writes, "In classrooms where participation is meager, the low performance of students is routinely misjudged as low achievement" (Shor 21). Rather than see these students as lacking, uncaring, or lazy, Shor argues that teachers should realize that in a teacher-centered classroom, the expectation is for the teacher to perform, to speak, and to work with ideas; the students are only expected to repeat the information, which is either "right" or "wrong." This attitude invites the minimal level of participation. Often, in this case, students have learned that if they just wait long enough, the teacher will continue on with the "right" answer. Through the process of democratizing the classroom, Shor relays the impetus of discussion—asking and answering questions, posing problems, engaging in conversation—across the entire classroom. Shor reports the results of this pedagogy first-hand:

Their questions provided some wonderful launching pads for our study.

Instead of answering their questions in brief lectures, I posed them one

by one, so that students could participate more, answer their peer's

questions as best they could, practice thinking out loud, and display what

they already knew-all this before I provided any academic response. The

syllabus was built upward from student responses instead of downward

from my comments. This political change of direction in the making of a

democratic curriculum is a way to authorize students as co-developers of

their education. With some authority, they can feel co-ownership of the

process, which in turn will reduce their resistance. (Shor 28)

As students gain proficiency in answering each other's questions, they develop the agency and influence that will inspire more participation in class, all the while cultivating a critical lens and developing the practice of challenging and questioning standardized and hierarchical narratives.

But are we doing a disservice to students by resisting the structures of current-traditional teaching, allowing students to pass through the class without experience in the kinds of writing that their other teachers, and other subjects will demand? And are we engaging in our own problematic applications of power when we determine what kinds of discussions, writings, and subjects lead to the "right" kinds of thinking? Patricia Bizzell reveals, through her work, the ways that she has grappled with these questions and worked to situate her own position in the conversations about critical pedagogy. Bizzell draws from Thomas Kuhn's description of paradigm shifts: the body of knowledge that constitutes a structure of a current paradigm is not "more right" than the paradigm preceding it—a paradigm achieves dominance not because it is true, but because it manages to achieve a certain saturation of understanding and acceptance in society.

This idea helps contextualize paradigms, even progressive ones, as fluid, and challenges ideas about superior truth.

> *Thus, as Kuhn argues, a paradigm gains ascendancy not because it is proved true, but because "preceding argumentation" within the community has persuaded most of its members that it is a reasonable choice. But, as Kuhn also argues, a paradigm established by reasonable debate is no less useful to the community for being, in a sense, provisional. (Bizzell 47)*

Ultimately, Bizzell promotes the study of multiple paradigms through Discourse Analysis:

> *In the absence of consensus, let me offer a tentative definition: a 'discourse community' is a group of people who share certain language-using practices. These practices can be seen as conventionalized in two ways. Stylistic conventions regulate social interactions both within the group and in its dealings with outsiders; to this extent 'discourse community' borrows from the sociolinguistic concept of 'speech community.' Also, canonical knowledge regulates the worldviews of group members, how they interpret experience; to this extent 'discourse community'' borrows from the literary-critical concept of 'interpretive community.' The key term 'discourse' suggests a community bound together primarily by its uses of language, although bound perhaps by*

> *other ties as well, geographical, socioeconomic, ethnic, professional, and*
>
> *so on. (Bizzell 222)*

By encouraging students to become aware of the growing, communicating, and conflicting discourse communities constantly at play around them, each one with its own conceptions of right, wrong, procedures, and understandings of reality, students can learn to develop a critical awareness about the structures around them but also learn how to interrogate and draw from discourse communities in useful ways. Bizzell teaches awareness of the "hidden curriculum" (Bizzell 99) and the normative and structural function of traditional schooling, but also encourages students to inquire into the values and rules of Standard English, contextualized with questions and awareness of its political purpose. She makes this obvert: "I also want to argue that so-called "Standard" English and academic discourse should be taught. But their teaching must be justified in a way that does not obscure the political questions" (Bizzell 131).

Forwarding the idea that different discourse communities demand different modes of work and run on different—and at times, conflicting—values and expectations about writing, Writing Across the Curriculum (WAC) pedagogy is designed to help teachers and students think of writing outside of the limited boundaries of their classrooms and to realize that writing plays a part in communication across audience, genre, and class subject:

> *Unlike general education, WAC is uniquely defined by its pedagogy.*
>
> *Indeed, one might say that WAC has been, more than any other recent*
>
> *educational reform movement, one aimed at transforming pedagogy at*
>
> *the college level, as moving away from the lecture mode of teaching (the*

"delivery of information" model) to a model of active student

engagement with the material and with the genes of the discipline

through writing, not just in English classes but in all classes across the

university. (Mcleod 150)

Susan McLeod writes that WAC plays an important part in decentering the teacher as the sole expert and valuing the student, and the student's audience in determining the path of development for the writing. The teacher, responding "as a facilitator and coach rather than as a judge" (152), works with the student as she considers the demands of the genre, learning how to navigate between competing values between, for example, a scientific discourse and that of the humanities. In this case, a teacher in a science course will expect a student to write in the passive voice, to write clearly and objectively, without superfluous language which is seen as unnecessary and "flowery." By teaching the genres of different field expectations, students learn multiple forms of authorship and learn to contextualize them in conversations with one another without privileging one form of discourse as "right." Doing so works to situate students in an active process of rhetorical negotiation through specialized and even contradictory procedures in a pedagogy that endeavors to function not like the traditional educational apparatus but in the modern workplace:

Teaching the genres of the discourse community is therefore inseparable

from teaching the disciplinary knowledge of the discipline. The pedagogy

connected with such teaching is not one of forms and formats; it involves

setting up various practice sessions for students to model the writing

behaviors and practices they will need as members of particular

discourse communities. This means doing away with the usual kinds of

school assignments, writing only for the teacher as examiner, and having

students try out as much as possible writing to real audiences for real

professional purposes. (Mcleod 165)

Teaching discourse negotiation in this manner, Macleod makes clear, does more than simply teach genres and conventions. It teaches students to become aware of the ways that "experts in the field develop and disseminate knowledge" (Mcleod 157).

Rebecca Howard, Lisa Ede, and Andrea Lundsford use a pedagogy of Collaborative Writing to serve as vehicle for raising awareness of conflicting worldviews, discourse communities through conversation and shared-action in the process of working together on the same piece of text. Collaborative Writing challenges current-traditional structures and values of individual achievement and hegemonic authorship, and as such, challenges students and teachers in a pedagogy Howard writes is "fraught with peril" (Howard 62). It must be taught, however, not only because it destabilizes the current-traditional power structures that lead to disaffection and disconnection, but also speaks to the many collaborative jobs and modes of discourse that may be required in an increasingly networked society: "yet collaborative writing dominates the corporate work place and many academic disciplines, and critical theory increasingly insists that all writing is collaborative. Thus, despite the perils, some teachers persevere in assigning and teaching collaborative writing" (Howard 62). Howard, Lundsford, and Ede lay out a curriculum that beings with immediate discussion of in the intricacies and difficulties of collaborative work, engages in "collaborative class discussion, small-group work, collaborative invention," and

"collaborative revision" (Howard 62), and trains students to navigate the "labor-intensive" tasks that must be navigated between small, "specialized" task forces (Allen et al. 87; Howard 62) and the synthesis large, collaborative efforts which "demand that divergent perspectives be brought together into a solution acceptable to the whole group" (Ede and Lunsford 123; Howard 63). Similar to the other pedagogies described here, this endeavors to empower the student and place her in situations where she has to learn to navigate competing discourses of information in order to produce the kind of work that will be expected of her in an increasingly networked age of information.

The rise of computers and the networked age, which brought about new conceptions of text, communication, and education help situate an additional move into a "post-criticism" discourse composition. With Gregory Ulmer's paradigm of Electracy, writing and teaching is seen in a digital light that is informed by the multimodal layers of the networked, participatory and multimodal forms of expression proliferating with the growth of the internet. Ulmer frames this movement by situating three paradigms, each which functioned on, and drew meaning from, different values: the Greeks functioned on the Oral paradigm, which stressed performance, memory, and rhetorical discourse; the Industrial age saw the rise of the Literacy paradigm, which stressed writing, objectivity, and argument; and then, finally, the Electrate age, focused on writing as a form of multimodal pastiche, where emotion, being, and play become central values in a shifting and connected set of new ways to communicate. Through his work, Ulmer works through performance, memory, visuals, and text in a semi-autobiographical montage and exploration of self and other. In *Participatory Composition*, Sarah Arroyo describes Gregory Ulmer's concept of Electracy as a shift in rhetoric that mirrors the shift from Orality to Literacy: the rise of Literacy

forced new conceptions of terms, theories, and values on the established system of Greek oral rhetoric: where there was once a focus on religion, that was complicated by the rise of a focus on science. Where there was an emphasis on narrative, the focus began to shift to argument. Where the goal of philosophy was to distinguish between Right and Wrong, the goal of Literacy was to determine between True and False (Arroyo, *Participatory Composition* 8). In Ulmer's Electracy, another shift happens: what was once a focus on science, art, thinking, and learning is now explored through entertainment. Where there was a focus on a logically valid argument, there is instead a focus on performance: enacting arguments and persuading through multiple forms of media. Where there was a goal to determine between True and False, there is instead an exploration of Joy and Sadness as the pursuit of truth gives way to living and experiencing multiple lives, avatars, worlds, and stories (Arroyo, *Participatory Composition* 8).

APPARATUS

	Orality	Literacy	Electracy
Practice	Religion	Science	Entertainment
Procedure	Ritual	Method	Style
Institution	Church	School	Internet
State of Mind	Faith	Knowledge	Fantasy
Behavior	Worship	Experiment	Play
Philosophy	Mythology	Epistemology	Aesthetics
Ground	God	Reason	Body
Ontology	Totem	Category	Chora
Mode	Narrative	Argument	Figure
Axis	Right/Wrong	True/False	Joy/Sadness

Fig. 1. Shifting Paradigms. Arroyo. *Participatory Composition 8*

All of this is served by remixing conceptions of writing and creation, of thinking of "felt," concepts pressing together without separation, rather than "woven" with discernable, separate textual threads (Ulmer 36). Students learn new skills, try new genres, and blend the boundaries and their conceptions between art, composition, performance, and writing.

In *Internet Invention*, Ulmer models a pedagogy that functions on these values. He teaches the "Mystory," which asks students to delve into themselves and their constitutive influences through their social, family, educational, entertainment, and professional lives, to find what is revealed as these themes and lenses overlap, and to use these discoveries in multimodal and exploratory presentations. This process of invention, performance, and synthesis can be applied as well to areas, people, and places of further study, prompting in-depth, creative, multimodal, and emotional research, writing, and/or presentation. Ulmer rationalizes that the Mystory is the writing style of a 21st century. As Ulmer writes:

> *It was a response to a suggestion by Hayden White that if history had been invented in the twentieth century rather than the nineteenth, it would be quite different, reflecting a different science and a different aesthetic: not positivism but quantum relativity; not realism but surrealism. Mystory is a version of this twentieth-century historiography that White proposed. (Ulmer 6)*

The creation of this genre will have students exercise and synthesize a blend of scholarly, evocative, and creative work. Electrate work demands new ways of thinking about work that subvert and challenge traditional conceptions of education and writing, but will, it is argued,

exercise a skill set that better speaks to 21st century students and better prepares them for the 21st century electrate workplace.

Sarah Arroyo agrees that Electracy can create the foundation of an effective 21st century pedagogy. Drawing heavily from Ulmer, Arroyo builds a pedagogy of *Participatory Composition*, where students are brought into the paradigm of Electracy by completing assignments through a collaborative and multimodal lens. She draws from critical pedagogies a resistance to singular narratives and sets pedagogy at play with the multi-lensed and multi-discoursed genres of the internet, creating a pedagogy that demands the "rapid mixing of identity formation, technical savvy, rhetorical skills, and participation in networks" (Arroyo, *Participatory Composition* 23) that characterizes creative, collaborative, networked work found in internet communities. Arroyo argues that an Electracy-informed pedagogy offers a needed "next step" to critical pedagogies. While critical pedagogies may work to raise students' awareness of the mechanisms of systematic oppression, electrate practices work to apply that knowledge by situating students in work within paradigms that actively function with these reshaped values. Arroyo offers that "in electricity, the writing subject is reconceptualized, almost turned inside out and back again because of the constant interface with and melding of desire and the social" (Arroyo, *Participatory Composition* 32).

Arroyo certainly isn't the only scholar who meditates on how the rise of digital networking is changing language, communication, and modes of work, and how these changed values demand new forms and standards of composition. In 1996 The New London Group put forwarded a "pedagogy of multiliteracies" (Cazden et al. 63) that would mark the exigency and foundational values of new compositional approaches for decades. The New London Group call for an

education that helps students participate fully in the multimodal and networked forms of "public, community, and economic life" (Cazden et al. 60). They work to expand commonly current-traditional understanding of literacy beyond being seen as "a carefully restricted project – restricted to formalized, monolingual, monocultural, and rule-governed forms of language" (Cazden et al. 61), to include multimodality of genres across electronic media for an endlessly opening demographic of possible audiences:

> *We decided to use the term "multiliteracies" as a way to focus on the realities of increasing local diversity and global connectedness. Dealing with linguistic differences and cultural differences has now become central to the pragmatics of our working, civic, and private lives. Effective citizenship and productive work now require that we interact effectively using multiple languages, multiple Englishes, and communication patterns that more frequently cross cultural, community, and national boundaries. (Cazden et al. 64)*

By doing so, they argue that this pedagogy will produce not docile workers but students able and excited to "speak up" (Cazden et al. 67), establish themselves digitally, and participate in the conversations around them—and all over the world.

I would like, here, to stop and explore a parallel thread which has also developed, through the '90s and into the new millennium, to arrive at important ideas about teaching in the digital age. Moving away from composition, I focus here on wider pedagogical conceptions of learning. In the '60s, Jean Piaget devoted his work to the study of how children learned through various

stages in their life. He discovered important ideas about learning that have been instrumental to the field of pedagogy. He argued that learning is experiential and always contextual: "No behavior," he argues, "even if it is new to the individual, constitutes an absolute beginning. It is always grafted onto previous schemes and therefore amounts to assimilating new elements to already constructed structures" (Piaget, "Piaget's Theory" 707). Children learn through experience and discovery (Piaget, *To Understand Is to Invent* 20), the culmination of which leads to a developing understanding of the world which from which all future knowledge will come in relation to, by either accepting the information which can be *assimilated* into the body of knowledge, or going through *accommodation*, where the body of knowledge has to change to accommodate the new information. Piaget elaborates: "assimilation is the integration of external elements into evolving or completed structures" (Piaget, "Piaget's Theory" 706). Accommodation is "any modification of an assimilatory scheme or structure by the elements it assimilates" (Piaget, "Piaget's Theory" 708). Accommodation can be a struggle because it forces a restructuring of what is already understood—but it is through this struggle that we achieve developmental progress. Piaget identifies stages of development; children move through what he calls sensorimotor, preoperational, concrete operational, and formal operational stages (Piaget, "Part I" 7), and each stage creates a certain position of understanding about the world. What's important about this idea is that a child at one stage of development will be unable to learn a concept of a later stage of development, no matter how clearly this information is delivered. Thus teaching cannot (solely) happen via the process of transmitting information from a teacher to a student. As Kafai and Resnick say in a summary of this Piagetian constructivism, "children don't *get* ideas; they [actively] *make* ideas" (Kafai and Resnick, *Constructionism in Practice* 1).

In the late '70s and early '80s, Lev Vygotsky added to this idea of development a social

consideration, finding that the effect of communication, collaboration, and social play is

"enormous" (Vygotsky 96) on the development of a child. Through interaction with others,

Vygotsky argues that students are challenged, their conceptions reframed, and they can imitate,

work, play, and discourse within each student's individual "Zone of Proximal Development"

(Vygotsky 102), a sweet spot of cognitive engagement that is not so easy that the student does

not learn, change or grow, nor is so difficult that the student shuts down and or has no way to

apply the information in a constructive or developmental way.

Later in that decade, Seymour Papert incorporated ideas from both Piaget and Vygotsky

in a pedagogy that stresses play and collaboration in the act of co-construction on a shared

project. This pedagogy, called "Constructionism," takes from Piaget the idea that students learn

and develop at their own levels through interaction with the world around them, through multiple

models, in an unplanned and unplannable process. Constructionism is an evolution/modification

to Piaget's theory of Constructivism, which argued that learning would best be achieved through

experience and discovery (Piaget, *To Understand Is to Invent*) with objects in the physical world

(Piaget, "Part I"). Papert's modification to constructivism adds a social, connected framework to

the theory, offering that this kind of learning "happens especially felicitously in a context where

the learner is consciously engaged in constructing a public entity, whether it's a sand castle on the

beach or a theory of the universe" (Papert and Harel 1). Constructionism, then, considers the

learning experience opened up by connection, by audience, inspiration, competition, and

mentorship. It's a vision of learning-by-doing and learning-by-making that challenges traditional

conceptions of learning, which Papert refers to as the "Gothic Cathedral model of learning,"

(Papert, *The Children's Machine* 62), wherein education is seen as a set of direct instructions. Knowledge is laid down in exactly the right order, brick by brick, according to a specific blueprint and order:

Such a theory might appeal to the analogy of building a Gothic cathedral out of 40,000 blocks of stone. Clearly, strict organization is needed to perform such a task. One cannot have individual workers deciding that they want to put a block here or there just because they are inspired to do so. Educating a child is a similar process. Everyone has to follow the plan. Of course, nobody would subscribe to these theories in a literal sense. Yet I honestly believe that they capture the essence of the academically respectable theories from which the hierarchical organization of School derives its legitimacy. (Papert, *The Children's Machine* 62)

Constructionism, by contrast, offers that better learning can happen through play, trying things out, and working with the results: the class would decide where and how to place the Cathedral bricks, and would move them around as needed, developing through a phenomenon Papert calls knowledge in use: "When knowledge is doled out in tiny pieces, one can't do anything except memorize it in class and write it down in the test. When it is embedded in a context of use, one can push it around," use it, and learn contextually (Papert, *The Children's Machine* 63). Learning ranging from navigating spatially within the world to reading fluently comes in slow crawls or fast dashes, sometimes responding well to formal instruction, sometimes not, sometimes not needing it at all. Papert reflects on his own learning and development and finds that many of the complex processes he understands were built on countless lessons that were never directly taught to him, being applied only when he was cognitively and developmentally ready to learn them. In a story of his fascination with flowers, for example, Papert admits that he

spent most of his life without any understanding of how to tell one flower from another. Even

when he would hear information about flowers, the information would not be retained—he was

not in a position to have that information participate in his development at that time. But, over a

series of experiences, when enough background knowledge was in place that he could make

connections between etymologies and names of flowers, an interest in one flower lead to his

learning about another, and then another, engaging in a self-driven journey of learning: "The

deeper I got into my 'affair' with flowers, the more connections were made...spread in many

directions; I was learning Latin words, I was picking up insights into the history of folk-medicine;

and I was gaining or renewing geographic and historical knowledge" (Papert, *A Word for Learning*

22). Papert's experience here would lead him towards a model of learning which demands

subjectivity, context and connection:

> *Slowly I began to formulate what I still consider the fundamental fact*
>
> *about learning: Anything is easy if you can assimilate it to your collection*
>
> *of models. If you can't, anything can be painfully difficult. Here too I was*
>
> *developing a way of thinking that would be resonant with Piaget's. The*
>
> *understanding of learning must be genetic. It must refer to the genesis of*
>
> *knowledge. What an individual can learn, and how he learns it, depends*
>
> *on what models he has available. This raises, recursively, the question of*
>
> *how he learned these models. Thus the "laws of learning" must be about*
>
> *how intellectual structures grow out of one another and about how, in*

the process, they acquire both logical and emotional form. (Papert,

Mindstorms *2)*

Learning, understood in this way, cannot be reliably transmitted from any single source at any given time. Instead, learning has to occur through the messy, co-constructive acts of making, communicating, and engaging within the world.

In *Mindstorms,* Papert meditates on the power of the computer to create these kinds of co-constructive environments. Arguing that the computer can create powerful, customized, and engaging learning spaces, Papert frames the learning of math (and other concepts!) through an activity of learning how to work in a programming environment called LOGO. Rather than trace a concrete set of lessons, Papert offers students a goal—students are to design a game, drawing, or animation by learning the programming required to get the computer to make the desired designs. Through scaffolding of simple concepts—this is how a student makes a line, then a shape, then multiple shapes, then animated shapes, students start to learn through trial and error. When they make a mistake, the execution of the code results in something different; on their own and in their own constructive environments, students can work with the mistake and fix it—or let that mistake inform new understanding and new creative possibilities. This recasts traditional (and stratifying, identity-shaping, ego-destroying) conceptions of 'succeeding' and 'failing:'

For example, many children are held back in their learning because they

have a model of learning in which you have either "got it" or "got it

wrong." But when you learn to program a computer you almost never

get it right the first time. Learning to be a master programmer is learning

to become highly skilled at isolating and correcting "bugs," the parts that

keep the program from working. The question to ask about the program

is not whether it is right or wrong, but if it is fixable. (Papert, Mindstorms

10)

The learning, here, covers information about geometry, language, velocity, processes, and

procedures, and more, as Papert argues:

That all this would be fun needs no argument. But it is more than fun.

Very powerful kinds of learning are taking place. Children working with

an electronic sketchpad are learning a language for talking about shapes

and fluxes of shapes, about velocities and rates of change, about

processes and procedures. They are learning to speak mathematics, and

acquiring a new image of themselves as mathematicians. (Papert,

Mindstorms *7)*

This learning is developed bottom-up through engaged and social activities, rather than isolated,

hegemonic, top-down transmissions of information. The computer, here, shepherds a transition

from learning conceived as top-down, static, and transmissive, to learning conceived through

interaction, collaboration, and engagement on student-centered projects.

Having traced these threads, I have created a space for my own contribution to these

fields, but first I will return briefly to Tobin. In explicating the movement from process to post

process, Tobin warns about the dangers of encapsulation:

Dividing the history of our field into preprocess, process, and postprocess is as reductive and misleading as dividing the composing process into prewriting, writing, and revising. In fact, many of the post-process critiques of the '90s rely heavily on process methods, just as process pedagogy continues to make use of traditional ideas about invention, development, thesis definition, notions of authorship, and so on. (Tobin 15)

Indeed, most of the scholars explored in this chapter would be, and in some cases, explicitly were, uncomfortable with being lumped into a single pedagogical position. The writing process is varied, vast, and complex; an effective teaching process should be even more so. Tobin writes, in fact, that as a teacher he pulls this and that from multiple sources all across the "timeline" of composition:

In most respects, I still remain clearly committed to a process design: I allow students to choose most of their own topics and forms and to work on essays for long periods of time punctuated by frequent feedback and revision. And I devote most class time to workshops, group work, writing activities, and discussions of invention and revision strategies. But I am no longer as rigid or as pure about teaching by not teaching. I have gone back to my earliest days by reinserting some of my old minilessons on how to identify your audience, how to establish a credible ethos, how to cite sources, and even have to write a five-paragraph-essay . . . at the

same time, I find myself borrowing post-process language and methods

to help students see how text and writers and readers are always and

inevitably embedded in multiple contexts and cultures. (Tobin 16)

Sarah Arroyo, too, cautions against subscribing to any singular foundation of pedagogical knowledge and promotes a fluid and electrate combination of theory and practice, both of which will change, informed by the other:

I hope to show that we can resist the theory/practice split by practicing

theories as they emerge. In other words, I am asking readers to consider

letting go of the idea that when we teach writing (at any level), we are

transmitting a body of knowledge resting on a solid theoretical

foundation. Instead, we can encourage students (and ourselves) to

participate in inventing new values and purposes for writing in an

electrate apparatus. (Arroyo, "Playing to the Tune of Electracy" 708)

Here, I agree. I argue that a teacher should be a bricoleur, weaving a tapestry of important pedagogical ideas, teaching what is found to be important and revelatory while keeping in mind the cautions and dangers of system, worldview, discourse, and power revealed in more critical pedagogies.

In creating a "Microworld" pedagogy, then, I draw from ideas about teaching, learning, and writing going all the way back to current-traditionalism. From current-traditionalism, I draw the mini-lecture: writing strategies, research strategies, ideas about copyright, demonstrations of effective peer responding, etc., can all be discussed and modelled, and I teach the (contextualized)

importance of being able to engage in professional and standard academic discourse. From expressivism, I preach the values of copious writing with no editing, extended freewrites, responding techniques that stem organically from a reader's reaction to the text, and copious revision. From Critical Pedagogy I teach the study of Discourse Communities, the relativity of their standards, values, and expectations, and the ways they constitute or contribute to power and structure, and work to limit the assumptions of power from my own position by asking for discussion, input, debate, and negotiation for class procedures, modes of evaluation, and topics of inquiry. From Writing Across the Curriculum I engage my students in the study of genre, students will develop proficiency in navigating Discourse expectations, but also learn to develop their own voice, appreciate their own values, and keep critical awareness of the assumptions of dominant culture. From Ulmer I introduce my students to a pedagogy of multimodal, collaborative, networked, "multiliteracies" by teaching the concept of Electracy as the current paradigm that is layered over—drawing through—Literacy and Orality. From Piaget and Papert I focus class time on letting students work on the engaging project they want to work on, learning at their own level as they work together to research, learn the genre conventions, and practice creativity, argument, and expression as they experiment as readers, writers, and responders of the genres they are creating.

I hope to show how the creation of the right kind of platform can make the execution of these ideas easier. The quality of the platform, forming a "microworld," will determine the kind of work that happens within it. It can either promote creative, connected, multimodal and playful work, or it can confuse, alienate, and bore the student, operating exactly with the same faults as

current-traditionalism. To create this platform, then, we have to understand the pedagogical

potential of networks, digital culture, and games, which I will turn to in Chapter 3.

CHAPTER 3: NETWORKS AND FANDOM

As computer technology grew in ubiquity through the last decades of the 20th century, the increasing proliferation of networked technology opened new possibilities in thinking about text, writing, and education. This chapter will trace a digital, networked interest in pedagogy through the '90s that leads into an exploration of Web 2.0 and Social Networking in writing and education in the first decade of the 21st century. Here, I will argue that teachers have been unable to fully execute the potential of this technology in their classrooms for a number of reasons. In order to advance this conversation, I will argue both that we need to look forward—to studies of how people are using games, mods, and creative tools to pursue their own learning and communication objectives—and backward—to the modes of work and play that were engaged in co-constructive writing and programming in MOOs—to inform a "Microworld" pedagogy that focuses on learning through playful, collaborative, constructive environments. Finally, I will sketch out how a "Modern MOO" might function to bring this pedagogy to today's creative "digital natives."

NETWORKS: THE UTOPIAN IDEAL

The personal computer, gaining ubiquity through the 80s, brought "computing" out of the domain of computer scientists and into the common cultural zeitgeist. The Internet was a revolution. Theorists were quick to realize what networked communication could mean in terms of how we communicate, work, play, share information, and even write in an increasingly digitally connected world. Howard Rheingold, in *Smart Mobs*, writes about the power of dynamic

networks of people. Invoking Metcalfe's Law, which states that for every additional node in a

network, the possible connections—the potential of the node's benefit to the network—expands

(Rheingold 59), and Reed's law, where with the creation of online, ad hoc networks and groups of

information, the potential of the node's value to the network is increased exponentially

(Rheingold 60). Reingold's "smart mob" comes together via a mix of social behaviors that, though

network connection, take on new shapes: "reciprocity, cooperation, reputation, social grooming,

and social dilemmas all appear to be fundamental pieces of the smart mob puzzle; each of these

biological and social phenomena can be affected by, and can affect, communication behaviors

and practices" (46). What fascinates Rheingold about these theories is the potential of these

networks, forming dynamically in cyberspace from nodes coming in and out of existence as users

log in and out from all over the world, sharing information, coming to conclusions, forming ideas,

ideals, communities, ways of thinking; informing social action, pooling social knowledge; creating

a social mind:

> *Peer-to-peer networks are composed of personal computers tied*
>
> *together with consumer Internet connections, each node a quantum zone*
>
> *of uncertainty, probe to going offline whenever its owner closes his*
>
> *laptop and chucks it into his shoulder-bag...peer-to-peer networks aren't*
>
> *owed by any central authority, not can they be controlled, killed, or*
>
> *broken by a central authority. Companies and concerns may released*
>
> *software for peer-to-peer networking, but the networks that emerge are*
>
> *owned by everyone and no one. (Rheingold 63)*

Citing Cory Doctorow for the term "faery infrastructure" (qtd. in 63), Rheingold explores these ad-hoc networks as "n-dimensional topologies," formed from individual interests, yet, through overlapping actions of communication, become something more (Rheingold 63). Drawing from Bernardo Huberman, Rheingold closes with meditation of these ad-hoc networks as "an emergent intelligence," a "social mind," which can be seen only through the collective action of the many:

> *Intelligence is not restricted to single brains; it also appears in groups,*
>
> *such as insect colonies, social and economic behavior in human societies,*
>
> *and scientific and professional communities. In all these cases, large*
>
> *numbers of agents capable of local tasks that can be conceived of as*
>
> *computations, engage in collective behavior which successfully deals*
>
> *with a number of problems that transcend the capacity of any individual*
>
> *to solve… When large numbers of agents capable of symbolic –*
>
> *processing interact with each other, new universal regularities in their*
>
> *overall behavior appear. (Rheingold 179)*

Pierre Lévy shares a similar utopian excitement about the potential of this technology. In *Cyberculture*, Lévy argues that the modes of new media, fueled by potential connection, invite collective participation and new forms of communication that were never provided by traditional media (ix). This affords us an opportunity that, he argues, could improve our life across all spheres: "A new communications space is now accessible, and it is up to us to exploit its most positive potential on an economic, political, cultural, and human level" (ix). Lévy describes an emancipatory potential of cyberspace, arguing that the more universal cyberspace becomes, the

more an utterance (a thought, an argument, etc.) is exposed and responded to by different viewpoints, worldviews, communities and cultures, the less it is shaped, responded to, reacted to by any singular dominant narrative, or the "pragmatics of communication, which, since the invention of writing, has conjoined the Universal and totality" (Lévy 98). Multiple points of view prevent any singular point of view from gaining power. Thus these new technologies are uprooting the ways that non-networked technologies have been codifying power. He elaborates:

> *In the classical regime of writing, the reader is condemned to re-actualize the context at great expense, or submit to the determined efforts of churches, institutions, or schools to revise to revive and enclose meaning. Today, technically, because of the imminent networking of all the machines on the planet, there are almost no messages "out of context," separated from an active community. (Lévy 99)*

Thus, "the more universal (larger, interconnected, interactive) [a message, connection, or unit of communication] is, the less totalizable it becomes. Each additional connection adds heterogeneity, new information sources, new perspectives, so that global meaning becomes increasingly difficult to read, or circumscribe, or enclose, or control" (Lévy 101). Virtual communities that form in cyberspace come together, he argues, not by the territories, dominant cultures, corporate authorship, and structures that control our "real world" lives, but through relationships, through communication, over shared interests. United by a common affinity space, Lévy offers that these groups could be comprised of great diversity across age, gender, nationality, and race: ""Our desire for virtual communities reflects an ideal of deterritorialized human relationship, nonhierarchical and free. Virtual communities are the engines and agents, the

multiform and astonishing lifeforms of the universal through contact" (Lévy 111). In these virtual communities, (potentially) diverse members gain power through this shared discourse, as all are unified under the verbs of doing, rather than the adjectives of personality identity:

Collective creation as well as audience participation go hand-in-hand with the third characteristic of cyber art: continuous creation. The virtual work is "open" by design. Every actualization reveals a new aspect of the work. Some systems not only manifest a combination of possibilities but encourage the emergence of absolutely unpredictable forms during the process of interaction. The creation is no longer limited to the moment of conception or realization; the virtual system provides a machine for generating events. (Lévy 116)

These deterritorialized groups form their own internal expectations, morals, behaviors, and hierarchies and enforce them naturally and internally as its members either rise in social status in the groups or are rejected: "The payback arises from the long-term reputation we develop in the virtual community," and in short-term, immediate responses such as praise, "retweets," or, in response to undesired behavior, "flaming" (Lévy 108–09). Resonating with Ulmer, Lévy describes how shared information and creation in these groups operates on a different paradigm than from traditional literacy. In Oral cultures, myths, stories, and knowledge would be passed on, body to body, generation by generation, without writing. Information on the internet functions similarly; it grows and moves through communities, gaining facets of knowledge authorlessly. This, again, is emancipatory; work gains meaning and relevance free from the ownership of a single author;

is not to be held or interpreted by any select interpreters, experts, or scholars. Only in this case,

unlike in cultures of Orality, the information resides not in any set of bodies, but in cyberspace:

> *The rise of cyberculture marks a return to these previous oral genres. .*
>
> *.The genres of cyberculture are similar to performance art, such as*
>
> *dancer theater, the collective improvisations of jazz, the commedia*
>
> *dell'arte, or the traditional poetry competitions of Japan. Like installation*
>
> *art, they demand the active involvement of the receiver, his or her*
>
> *displacement in a symbolic or real space, the conscious participation of*
>
> *the receiver's memory in the construction of the message. (Lévy 135)*

Lévy predicts from these concepts a rise of a new humanism, operating on a paradigm of collective

intelligence--the idea that everyone knows something, no one knows everything, and the

gathering collection of this knowledge is greater than the sum of its parts (Lévy and Bonomo 14).

As Bonobo explains:

> *What Levy proposes is a project that implies a new humanism quote that*
>
> *incorporates and enlarges the scope of self-knowledge into a form of*
>
> *group knowledge and collective thought . . . He argues that we are*
>
> *passing from a Cartesian model of thought based upon the singular idea*
>
> *of cogito (I think) to a collective or plural cogitamus (we think). The*
>
> *computer is that instrument that makes this Utopian ideal possible. (Lévy*
>
> *and Bonomo xi)*

Lévy meditates on what the future of a collective intelligence "global project," wherein "ethical and aesthetic dimensions are as important as its technological and organizational aspects" (Lévy and Bonomo 10), could look like with collective, distributed intelligence and mobilized skills. How might governments be reformed under this paradigm, he wonders? What might the world look like? The later decades will show that some of Lévy's thinking is prophetic, especially in terms of networked information (such as Wikipedia) and communities of shared creation. But many of his most ambitious, utopian thoughts are not actualized: power and structure as a normative force is stickier than he thinks. This will be explored further in this chapter with Alexander Galloway's *Protocol*. Still, Lévy, I argue, is entirely correct that these new forms of community, united over production and communication, demand new forms of teaching, which he traces out in an argument that closely resonates with contemporary calls for 21st century literacies:

> *Two major reforms of education and training are needed at this time.*
> *First, the tools and attitudes characteristic of open distance-learning*
> *must become an integral part of our educational systems. Open distance-*
> *learning exploit some of the techniques of distance-learning, including*
> *hypermedia, interactive networks, and all the intellectual technologies of*
> *cyberculture. But what is essential is a new style of pedagogy, which*
> *promotes both personalize learning and cooperative networked learning.*
> *In this context, the teacher inspires the collective intelligence of groups*
> *of students rather than directly dispensing knowledge. (Lévy 138)*

Such ideas about the potentials of networks, the accessibility of data, and an overall, net-facilitated attitude of swapping, borrowing, hacking, and building, have run as engine to many of the major technological developments that have ushered in the computer and internet ages as we know them. In *Inter/Vention*, Holmevik traces a thread that explores the creation of the GNU/Linux operating system (Holmevik 46), the rise of the Internet, and even the first MUDs and MOOs (96) through the concepts of bricolage, the bazaar, and Hacker Noir. Drawing from the French anthropologist Claude Lévi-Strauss, who defines the bricoleur as someone who "works with his hands and uses devious means compared to those of a craftsman" (qtd. In Holmevik 24), Holmevik brings the definition into a digital age in painting an image of a maker who, rather than attempting to build from the group up, takes and reinvents from the innovations already at play, who "creates through the act of re/making, as opposed to the engineer or craftsman who creates through deliberative reason founded in scientific literacy" (24). Such an image may paint a picture of an anti-maker, one going against the grain, against common concepts of "proper" ways to build. This is Holmevik's hacker: not the brooding villains of pop culture, but of makers who work by the "subversion and reinvention" of existing technologies (28). This philosophy on coding and creation evokes Eric Raymond's metaphor of "The Bazaar" (81), akin to a colorful market where practitioners explore the wares of their neighbors, move freely, talk, borrow, and haggle. In the open source movement:

> *Hackers not only took existing operating systems technology, refined it,*
>
> *and produced their own systems and solutions such as the BSD, GNU, and*
>
> *Linux operating systems, in the process they also invented both a*
>
> *renewed philosophy of code sharing and new collaborative development*

models based on the concept of open source. . . When he looked at the way in which Linus Torvalds had organized the Linux project, none of these "truisms" was anywhere to be found. On the contrary, to Raymond the Linux engineering model looked most of all like a "great babbling bazaar," in which basically anyone could bring their goods to market. If the project leaders deemed a particular contribution significant and valuable enough, it would then make its way into the code and become part of the bigger mosaic. (82)

In the context of this work, which resonates out from against current-traditional conceptions of pedagogy, such a metaphor is welcome. It shows how innovation happens through means that may not be seen as the "right way" to do things: they aren't scripted, they aren't singularly authored. They come about through engagement, collaboration, copying, play, and "messing around." Holmevik begins his work by making a similar argument about learning in the preface:

In this way, to me, the art of computer programming became a fascinating "game" in its own right where you would "play around" with the code until something brilliant and fun emerged. . . Some of my computer science professors later told me this was not the "right" and literate way to learn programming. They were wrong. Not only was it a lot more fun to learn programming by hacking together a game than, say, programming a member database for your local nonprofit or some basic sorting algorithm, it was also a lot more satisfying to be able to play

that game, share it with others, and get their feedback and input on it.

(preface)

In Holmevik's argument, learning and making happens dynamically as makers are placed in environments, spaces, that allow for playful experimentation and coconstruction. Holmevik argues that the computer becomes a site for this kind of work. The computer becomes a "digital sandbox," a space for ludic invention:

By tracing this history and linking it to electracy and ludic intervention,

my aim is to foster a broader understanding of the computer as a "digital

sandbox" out of which any number of amazing creations can arise.

Seeing the computer as a ludic space in this way affords us a better

opportunity to understand how it came to hold such a fascination for

hackers and how they ended up making it their own unique bricolage.

(36)

It is interesting that Holmevik uses in particular the metaphor of the sandbox: this is precisely the metaphor that was used to describe Microworlds in Chapter One. We are seeing a convergence of ideas here, coming together making a similar statement: learning and creation can happen more felicitously in an environment that allows for experimentation, copying, exploration, and play. We want to make our classrooms into "bazaars," where the classroom becomes a site for creative work across, with students swapping and sharing ideas and expertise, working together to innovate, experiment, and develop their voices and skills. And the network serves as both site and paradigm for this kind of pedagogy to flourish.

Of course, many have considered how rise of the computer and of networks can speak to the ways that students are and should be learning in the classroom. As the internet has grown in ubiquity over the last two decades, calls for teaching a modern generation of students a 21st century set of literacies have started to reflect the idea that the rise of the internet, and the new forms of communication and production it ushers, demand not just the use of new technologies, but new ways of thinking about authorship, writing, and modes of work. In *The Call for Digital Writing*, Cushman et al. make this clear, arguing that these new changes in communication and distribution are incompatible with traditional paradigms of education:

> *When we put it all together, the ability to compose documents with multiple media, to publish this writing quickly, to distribute it to mass audiences, and to allow audiences to interact with this writing (and with writers) challenges many of the traditional principles and practices of composition, which are based (implicitly) on a print view of writing. The changing nature and contexts of composing impacts meaning making at every turn. (Cushman et al.)*

What is needed is a wider, rhetorical approach to production that reflects the fluid, multimodal nature of work across digital genres and is not mired down with circumspection of a singular, print-based, grammatical conception of proper writing:

> *We reject the idea that writing equals style, syntax, coherence, and organization—meaning at the level of the sentence and the paragraph.*

And we reject the idea that all writing is the same, whether it is produced

with a pencil, a typewriter, or a networked computer. (Ibid.)

Instead, writing is not to be considered a static product but as a dynamic process across communities, not "a container," but a set of practices and processes of "discovering meaning or knowledge," wherein "the technological changes in production and distribution matter a great deal" (Ibid.). Cushman et al. close with a short manifesto on the reasons for using digital pedagogy, offering that students to be educated in 21st literacies must be able to navigate across a "full set of technology choices—including computers and networks—to support how they write, share, socialize, play, and organize their lives," and that teachers hoping to help students develop these skills must take on the position of a collaborator, engaging with the students in production. Their final outline of a digital pedagogy focuses on the varied "contexts of rich affordances of writing," is "rooted in a rhetoric that is technological, social, and cultural," is "linked to a thoughtful, critical consciousness of technology," is "anchored by multimodal approaches to writing," and, finally, importantly for a digital age where technologies, genres, and expectations can quickly change, is "framed by learning how to learn" (Ibid.)

BURSTING THE BUBBLE

After the '90s, the social media network became the new face of the Internet, and drove the brunt of scholarly research in the direction of considering how teachers can tap into a "Web 2.0" culture of students who like to chat, post statuses, and remix YouTube videos. The first decade of the 2000s saw an explosion of research into the networked activities of what Baird and Fisher calls the "neomillennial student" (Baird and Fisher 10), Prensky calls "Digital Natives"

(Prensky, *Teaching Digital Natives*), and Bruns calls "Generation C," with the C representing, among other things, Creation and Collaboration (Bruns 4). This is a generation of students who have always had access to the internet, and as such, they have grown operating on paradigms that are incompatible with traditional concepts of education. These students are seen as "always on" (Baird and Fisher 10), fluently multitasking, engaging in multiple forms of learning, participating in social media blogs, shares, and posts. They have always grown up with the internet and "immersed in digital technologies" (Bull et al.) foreign to their teachers who are called "digital immigrants" (Prensky, *Teaching Digital Natives*), who had to learn not only the new genres found on a changing Web, but to understand the new values that the Net Generation lived, worked, and played within. These students operate, it is argued, on the paradigm of "Web 2.0."

Web 2.0 is a concept that frames the early internet as "Web 1.0", comprised of mostly static webpages that were written and controlled by singular authors (think of GeoCities webpages and webrings). The move to "Web 2.0," then, marked the move away from singular authorship and towards networked authorship, with the boundaries between readers and writers blurred as, for example, a Wiki takes on collaborative forms of information, networks spring up, taking pieces from content all around the real and networked world, and form is separable from content—ideas are moved around, tagged in clouds of user-driven dynamic schemas of information, or shepherded through RSS feeds into custom newsletters. This style of communication was articulated as a shift from Web 1.0 to Web 2.0 values: Early websites (Web 1.0) were static and their forms immobile, reading essentially just like books and texts from the non-digital age. Information flowed in a mono-directional, "read-only" form (Greenhow et al. 247; Selwyn). Web 2.0, however, marked a shift from read-only to read and write: the Web 2.0 format

allowed readers to participate in both the form and content of the information. With sharing, comments, wikis, and RSS feeds, information could be generated, re-wrapped, and modified through "participatory," "collaborative," and "distributed" practices (Greenhow et al. 247; Hemmi et al. 19; Tess, "The Role of Social Media in Higher Education Classes (Real and Virtual)–A Literature Review" A62; Meyers et al. 356). From this core concept sprang pedagogical theories considering the integration of social media into the classroom. Greenhow et al. offer a framework of "formal" and "informal" learning which situates traditional, hierarchical, linear pedagogical practices as "formal" learning while learning derived through experimentation and engagement in projects and community is "informal." In this framework "formal" learning is the practice of traditional conceptions of education: it's structured, planned, centralized, and delivered as information from one (the teacher) to many (the students). It happens inside the classroom. "Informal" learning, happening outside the classroom, is decentralized, delivered not from one-to-many but from many-to-many (Barczyk and Duncan; Duncan and Barczyk); through networks that enable learners to come together over shared interests. In these networks learning happens dynamically and unplanned, in all directions, in what Jenkins and Arroyo call "participatory culture" (Arroyo, *Participatory Composition*; Jenkins, Ito, et al., *Participatory Culture in a Networked Era*). "Informal" work, such as the text found on a blog or a wiki, is never finished: it's constantly in the process of revision and transformation. This style of work subverts the traditional values of "formal" learning, challenging traditional understanding of plagiarism, structure and ownership; in growing communities of fan-fiction, ever-growing wikis, in a remix-culture that spans and combines genres, procedures, values, rules, and terms that once served a controlling and hierarchical service were being restructured. This, many theorists believed, could be used to

great emancipatory effect (Hicks et al.; Lassota Bauman; Richardson; Selber; WarsChauer and Ware). The question on educators' minds became 'what would Web 2.0 teaching look like?'

There have been scores of classroom experiments to try to answer this question, arriving at conclusions all over the spectrum [2]. Some teachers reported great success with their experiments in using social media and forms of communication in their classrooms, but many others reported encountering challenges and problems in executing this kind of pedagogy in their classrooms. There are some important reasons for this, which I will now delve into.

First, I argue that many failures to incorporate Web 2.0 technologies in the classroom relate to an over-generalization of terms mixed with wide-spanning and often false assumptions about the students. In his later work, Henry Jenkins came to qualify earlier claims about the emancipatory potential of this technology with his notion of *Spreadable Media.* Although the internet sees creative work flourish across communities, it is reductive to point a figure at any one technology and say "that's what causes this productivity." What is needed is a wider understanding of technologies and people at play with each other. Jenkins' notion of "spreadability", then, is both technological and cultural:

> *However, the mere existence of individual technologies to facilitate*
>
> *[sharing] . . . We must consider the integrated system of participatory*
>
> *channels and practices at work that support an environment where*

---

[2] See, amongst many others, (Becker; Becker et al.; Erstad; Isaías et al.; Kennewell; Kerres and Witt; Kirkwood; Kirkwood and Price; Lewis; Loveless; Luckin et al.; Mercer et al.; Somekh; Starkey; Underwood and Dillon)

content could be circulated so widely. For instance, uses of particular

services should not be viewed in isolation but rather in connection, as

people embrace a range of technologies based on if and when a

particular platform best supports the cultural practices in which they

want to engage. But, more fundamentally, we have to understand the

cultural practices that have both fueled the rise of these sharing

technologies and evolved as people discover how these platforms might

be used. (Jenkins, Ford, et al., Spreadable Media *11)*

Paul Tess (Tess, "The Role of Social Media in Higher Education Classes (Real and Virtual)–A

Literature Review") warns not to over-privilege the technology in the classroom and argues that

the enthusiastic theories were not yet backed with empirical evidence. Selwyn and Sterling argue

that the clean binaries that scholars were charting between "formal" and "informal" learning or

"Web 1.0" and "Web 2.0" paradigms are unrealistic oversimplifications: "In contrast, we know

from research outside of education that the use of social media by young people is complex,

convoluted and often contradictory" (4). The Net Generation coinage, too, is an

oversimplification; not all kids in this "generation" are insiders to this discourse (and certainly this

varies across socio-economic spectrums!), not all adults are outsiders to the discourse, and

teachers and "digital natives" alike have no special intuition as to how social media was supposed

to be used for academic purposes. Teachers and students reported social media experiments as

"distractive to learning" (Andersson et al.) as they struggled to navigate suddenly blurred

boundaries between private and public social-media lives (Bongartz and Vang) and cope with the

"information overload" of the untethered internet (Tess, "The Role of Social Media in Higher

Education Classes (Real and Virtual)–A Literature Review" A62). Others reported that students

saw the (mis)appropriations of social media for academic purposes as invasions between

important boundaries they held between work and play (Donlan, "Exploring the Views of Students

on the Use of Facebook in University Teaching and Learning"; Lohnes and Kinzer; Tess, "The Role

of Social Media in Higher Education Classes (Real and Virtual)–A Literature Review"). Students saw

this technology as "their space," and did not know how to use it educationally—or, even worse,

resented clumsy attempts to appropriate their spaces, which they use for "fun," into education,

or "work."

Indeed, in many studies the students themselves reported that attempts to use social

media technology in education were ineffective and distracting. Drawing from interviews and

surveys with students and teachers across three schools, Anderson et al. found that "students as

well as teachers find much of the students' social media use distractive to learning," and that

there were concerns related to "how social media use [made] students less social, how weaker

students [were] more likely to get distracted, how teachers [lacked] strategies for tackling the

problem and how the responsibility of the use [was] delegated to the students" (1). Similarly,

Donlan, in a "multi-stage, mixed methodology study" focused on "students' views on the use of

Facebook for teaching and learning purposes" discovered that the technology contributed overall

to a "lack of participation" ("Exploring the Views of Students on the Use of Facebook in University

Teaching and Learning" 17) and that:

> *Despite their apparent status as digital natives, students do not know*
>
> *innately how to learn in a Facebook environment and lack both an*
>
> *understanding of what constitutes knowledge in such settings and the*

skills required to adapt their understanding of using social networking

sites to an academic context. Consequently, students prefer to use tried

and tested sources such as books and journals to feel confident that the

resources they are using are appropriate. An understanding of the use of

Facebook in a social context, no matter how proficient, appears not to

automatically transfer into an understanding of its academic role. As

such, before any potential in such uses of sites like Facebook can be

realized, there needs to be a drive to educate students in information

literacy as it relates to social networking in academia. ("Exploring the

Views of Students on the Use of Facebook in University Teaching and

Learning" 5)

Secondly, studies in this direction suffered from a lack of homogeneity: there was no

common ground to start from. "Web 2.0" is a nebulous concept, neither controlled nor

understood by any individual platform or set of practices. Experiments with this concept in class

took widely different forms. Some teachers reported experiments with using Facebook in their

classrooms, others asked students to write Wikis or Blogs; digital "Learning Management

Systems" such as Blackboard sprang up and carried little focus, offering instead a messy onslaught

of different "web features" that were not well understood. Dabbagh and Kitsantas point out that

traditional attempts at digital education "are still primarily relying on traditional platforms such

as course and learning management systems (CMS/LMS) that do not capitalize on the pedagogical

affordances of social media for example allowing learners to manage and maintain a learning

space that facilitates their own learning activities and connections to peers and social networks across time and place" (1). In an ethnographic survey conducted over two semesters in 2006, Hemmi et al. agree, arguing:

> *The need for such research is pressing. The currently dominant modes for e-learning within higher education – those enabled by commercial virtual learning environments (VLEs) – are generally failing to engage with the rich potential of the digital environment for learning. Their tendency is to attempt to render the online learning space familiar through a conservative dependence on pre-digital metaphors, signs and practices which are increasingly anachronistic as digital modes gain in social and cultural significance. In particular, the structural linear hierarchies of the commercial VLE relate it to a logic associated with analogue writing technologies – in particular print – which have, historically, strongly informed our way of generating and distributing knowledge within and beyond academia. (Hemmi et al. 20)*

Because of these disparate experiments into the genre, the field was unable to grow; reports of successes and failures had little meaning because they were so small and specialized in scope.

Third, and importantly, these spaces were not as free and empowering as scholars imagined. As the Internet grew, so too did the corporations involved with its biggest networks. Today, most of the major social networking sites we use are owned by powerful companies which host—and thus control—the data. Excited musings about freewheeling sharing and the erasure

of hegemonic authorship are curtailed with automated takedown requests on YouTube if an algorithm detects copyrighted material, and corporations routinely send out "cease and desist" letters to authors of fan-driven remixes and appropriations. While there certainly are prolific communities of creation all over the Internet, there are also powerful corporations, hosting, controlling, using, and limiting these operations: in this "decentralized" environment, traditional paradigms still reign strong.

In a study on Facebook's use in the classroom, Friesen and Lowe find that Facebook's corporate control remain the greatest obstacle to effective, prolific, decentralized Web 2.0 use of Facebook in the classroom. Freisen and Lowe point out that most social media is owned and controlled by corporate interests. Social media platforms are in deep competition with each other, with profits the primary consideration behind every advertisement, share, and 'like,' in a battle for user attention and information. These are not the conditions of open, student-first learning that are commonly associated with the platform. Drawing from and updating media theorist Raymond Williams' study of the ways that advertising and the structures of media reinforce hegemonic power structures, Friesen and Lowe apply a lens of "information design, architecture, and algorithm" to argue:

> *Social media like Facebook and Twitter are above all commercial in form and as practiced, in substance. Looking first at Facebook and then at similar services, we argue that their business models are inseparable from the type of user experience that they provide. Built-in conditions of use restrict these services' information design in ways that significantly detract from learner control and educational use. Advertising interests*

inform the structure, and through it, the content, of dominant social networking services. Facebook's primary function, for example, is connecting users ('eyeballs') with advertisers. (Friesen and Lowe 2)

Understood with this lens, Facebook and other social media sites are not bottom-up, digital environments for prolific, networked creation but are products that enforce societal and commercial messages, limiting expression unless it can be used for capitalistic gain. These spaces do not empower nor educate, but inculcate into the preexisting systems that march on without concern for the individual student's growth.

Alexander Galloway explores these concepts in his explication of *Protocol*, of which I want to draw two important concepts: First, that many major structures of the Internet are not decentralized at all; in fact, much of the web is hierarchically organized, and that can be seen simply by looking at the URL one is visiting; every website belongs to a domain, found, for example, between "www" and ".com;" any website listed under that address belongs to the root domain, which has full control over the website. As Galloway explains, "Because the DNS system is structured like an inverted tree, each branch of the tree holds absolute control over everything below it" (Galloway 36). If that domain goes down, all of the websites under it do too. Thus, "the Net is not simply a new, anarchical media format, ushering in the virtues of diversity and multiplicity, but is, in fact, a highly sophisticated system of rules and regulations" (Galloway 36). Information protocols, Galloway writes, "are always layered, stratified, [and] sometimes blatantly hierarchical" (Galloway 17).

Secondly, Galloway uses Foucault's biopolitics to describe the concept of "Protocol" as a set of unifying expectations of behavior wherein power is determined. As Foucault's exploration

of power always emphasizes "the various correlations" between bodies and things, Galloway's concept of *Protocol* shows that so too is power found and codified not just in bodies but in "technical standards[…], network technologies […], institutional histories […] and, significantly, instances of 'tactical media'" (Galloway 19). These expectations unify the power relations of how code is written, how technological standards are formed, and exert shaping influences on all of the internet's activity. With this model, Galloway directly challenges the conception of the Internet as a rhizomatic platform completely free of centralized command or hierarchical control. Indeed, he argues, *Protocol* shows that power and control still exist outside of the Internet's decentralization (Galloway 20). Moving beyond strictly looking at the nature of the technologies themselves, Galloway also considers the biopolitics of the behaviors inextricably linked with the creation of the technology. The technology, created along certain expectations of how the technology should look and how it should function, has a "chivalry of the object" (Galloway 102). This technology, in turn, feeds the behaviors of the people who work and communicate within the networks created by the technology. Thus, "at the same time that it is distributed and omnidirectional, the digital network is hegemonic by nature; that is, digital networks are structured on a negotiated dominance of certain flows over other flows. Protocol is this hegemony. Protocol is the synthesis of this struggle" (Galloway 102). Some of these flows can be seen to cater to certain types of people; race, gender, and socioeconomic status can all come into play in determining one's computer literacy. And the computer literate, Galloway argues, rule the space: "To put it another way, while the Internet is used daily by vast swaths of diverse communities, the standards makers at the heart of this technology are a small entrenched group of techno-elite peers" (Galloway 102).

Another concern is reflected in the growing awareness of corporate control in the social media landscape. Lawrence Lessig, in an examination of how copyright law, now dated and insufficient to respond to the creative practices of the digital age but nonetheless is used to censor, monetize, and control creative work, argues that "the technology that preserved the balance of our history—between uses of our culture that were free and uses of our culture that were only upon permission—has been undone," and "the consequence is that we are less and less a free culture, more and more a permission culture" (297). These ideas draw into focus a modern Web 2.0 that is run by companies, reversing once again the values that promised empowerment and emancipation and returning hierarchical control (Galloway, *Protocol*).

James Gee shows in *Language and Learning in the Digital Age* how biopolitical structures reveal concrete problems in internet networks that reflect the power structures of the nondigital world. Not everyone has the same access to technology as everyone else, or is part of a culture that values/teaches how to use digital technology. Gee points out that the educationally powerful passionate affinity spaces are used more by privileged young people than by those who are poorer (86). Thus, in *The Anti-Education Era,* he argues: "Digital media are not making these gaps close; if anything, they are widening the gaps, especially in regard to so-called twenty-first-century skills (like innovation, system thinking, design, technical learning, and using technology for production)" (Gee, *The Anti-Education Era* xiii). Henry Jenkins agrees:

> *If various platforms offer divergent opportunities for participation,*
> *preservation, and mobility — and each system of communication*
> *sustains different relations between producers and citizens — then the*
> *established geopolitical system also creates hierarchies which make it*

harder for some groups (and some nations) to participate than others. . .

We believe it's crucial to always be cognizant that not everyone has equal

access to the technologies and to the skills needed to deploy them.

Despite (or perhaps because of) these inequalities, though, we are seeing

some spectacular shifts in the flow of information across national borders

and, as a consequence, in the relations between the peoples of different

countries. (Jenkins, Ford, et al., Spreadable Media *39–40)*

In *Participatory Culture in a Networked Era,* Jenkins et. al call this the participation gap; it's one of

three crucial issues that demand critical consideration if we are going to consider networked

education in the classroom:

Three concerns, however, suggest the need for policy and pedagogical

interventions: The participation gap: The unequal access to the

opportunities, experiences, skills, and knowledge that will prepare youths

for full participation in the world of tomorrow. The transparency

problem: The challenges young people face in learning to recognize the

ways that media shape perceptions of the world. The ethics challenge:

The breakdown of traditional forms of professional training and

socialization that might prepare young people for their increasingly

public roles as media makers and community participants. (Jenkins, Ito,

et al., Participatory Culture in a Networked Era *xii–xiii)*

There is also a problem with the homogeneity of affinity spaces and networks. If everyone has

the freedom to explore only their interests, there can be stratification, segregation, and a lack of

growth, as "everyone listens only to the news, and the slant on the news, that they already agree

with" (139) or engage in only their own groups for discourse and knowledge. Gee warns that "the

price can be a lack of common civic purpose, shared values, and commitment to the nation or

humanity as a whole" (140). Indeed, when heterogeneous groups form together to create echo

chambers to reinforce the beliefs they already have, the Web 2.0 powered internet becomes

anything but empowering: it becomes a discourse for oppression, a platform for "fake news," a

breeding-ground of zealotry and hatred. It is in these ways that collective intelligence, James Gee

writes, becomes "collective stupidity" (Gee, *Teaching, Learning, Literacy in Our High-Risk High-*

Tech World 84), and affinity spaces, which form around passion, become forces of great harm

rather than great potential. They're powerful, and Gee argues that we need to understand them

well and teach their strengths and dangers in the classroom:

> *So affinity spaces need not be benign. They can do great good and they*
>
> *can do great harm. This is so because they are powerful ways to store*
>
> *knowledge and resources and to teach, mentor, and develop people in*
>
> *certain ways. Thus, too, it is crucial to study affinity spaces if we want to*
>
> *understand the world, protect ourselves, and, perhaps, change the world*
>
> *for the better. The study of affinity spaces should be an important part of*
>
> *anyone's education. (127)*

Jenkins et. al warn that visions of Web 2.0 as technological utopia covers over these legitimate

problems, and what is needed instead is a wider understanding of the relationships between

corporations and fan communities in the construction of a "new moral economy:"

> *Sunny Web 2.0 rhetoric about constructing "an architecture of*
> *participation" papers over these conflicts, masking the choices and*
> *compromises required if a new moral economy is going to emerge.*
> *Instead, we feel it's crucial to understand both sides of this debate. Both*
> *ends of this spectrum interpret the process of creating and circulating*
> *media through a solely economic lens, when we feel it's crucial not to*
> *diminish the many noncommercial logics governing the engaged*
> *participation of audiences online. Further, both positions ignore the*
> *ongoing negotiation over the terms of the social contract between*
> *producers and their audiences, or between platforms and their users,*
> *while we believe that neither artist/company nor audience/user can be*
> *construed as stripped of all agency. (Jenkins, Ford, et al.,* Spreadable
> Media *55)*

I find these concerns to be valid and I believe that many attempts to appropriate social

media into the classroom miss the mark. This happens because early attempts to incorporate Web

2.0 technologies into the classroom end up trying to use current-traditional models of education

in digital environments. If teachers simply try to use the same content, methods of teaching, and

assumptions about learning that have constituted traditional education for centuries and simply

change the medium of this kind of learning, teachers and students will struggle with a clash of incompatible and confusing discourses. It is under this mismatched model of education that students and teachers will report technology as confusing and 'distracting,' with good reason: the technology itself won't make traditional models of learning work any better. Secondly, if teachers attempt to appropriate technology for traditional educational purposes, they will have to actively fight against the discourses that are incompatible with traditional teaching. They wage war here on two fronts: they fail to embrace the chaotic, unscriptable styles of learning that happen across distributed networks of creation, and two, they struggle against the convoluted rules of ownership and biopolitical, commercial power of corporate-controlled social media sites. Social Media sites are not built with education in mind. They do not naturally scaffold critical, educational work. We can work towards the solution here from three directions; one, teachers can learn to reframe education in a bottom-up, constructionist learning style that embraces learning as a messy, unscripted process that best occurs through active, hands-on, networked, communicative and creative work, two, we can encourage critical discussion that brings to light the mechanisms of biopolitical and corporate power in our lives and our work, and three, we can create platforms that are designed from the ground up to inspire, protect, and model this style of work. This dissertation is intended to be a call for approaching the issue from all of these directions. But to do so, we need a greater understanding of how this style of learning occurs across the internet and how it rises in communities. As Davidson and Goldberg write, "The point is not to cannibalize or invade social networking sites that kids use to interact with one another. . . . A better model is to study, in a careful ethnographic way, the kinds of interactions that occur on these sites and then to apply that research to new ways of thinking about informal learning and informal education" (*The Future of Thinking* 24). In order to deal with these problems, we

have to think about the use of these technologies in terms of the digital and pedagogical environment we are creating and asking our students to work within. We must have a broader understanding of the shifted paradigm of communication, work, and learning that is happening in networked digital spaces. To that end, I draw from digital ethnographies and studies of how people today use the internet and games to serve as environments for play, exploration and co-construction.

PASSION-DRIVEN SPACES: NEW PARADIGMS

Mimi Itō explores the expansive array of behaviors of the "Net Generation" and finds their actions distributed along a paradigm she creates of three phases: *Hanging Out, Messing Around, and Geeking Out.* These phases are listed in order of increasing engagement in the text, work, game, and/or environment they're involved within. The first phase, "Hanging Out," represents passive time spent in this networked culture. Kids can "Hang Out" on online forums, surf the web, watch TV together (either in person or via chatting or messages), or watch each other play videogames. *Twitch.tv*, for example, is a website where thousands of people watch others play videogames. As they chat with each other and with the player, they are spending time; they are enjoying the connections made possible by their shared company and interests. Itō offers that the key to the "hanging out" stage is that of "low stakes environments;" the activity is entertaining and rewards passive and playful exploration without major risks, "making mistakes or trying multiple scenarios to solve the problem; trial and error" (Itō 58). Itō points out that the digital media tools on the web facilitate this kind of exploration:

Because of the ease of copying, pasting, and undoing changes, digital

media production tools also facilitate this kind of experimentation. The

availability of these tools, combined with the online information

resources just described, means that youth with an interest and access

to new media now possess a rich set of tools and resources with which to

tinker and experiment. (Itō 58)

As kids get drawn in to these inviting, low-stakes environments and tools, they begin to develop

fluency in the discourses, aided by the influence and work of others, who swap in and out of a

mentoring role. Itō points out that this mentoring position is dynamic; in this paradigm, there is

no single holder of the "right" answers or ways to go about doing something:

It is important to note the nonstatic nature of the techie mentor; the

status of the techie mentor mentor is relative to the knowledge of others

within a social context. The significance of the techie mentor is that he or

she provides information to others without implying absolute expertise.

(Itō 60)

When the person "hanging out" decides to get involved in the entertainment, the person moves

into the "messing around" stage: here the user is participating or engaging with the product or

community, not simply watching and commenting, but exploring it, playing within it, discovering

what the possibilities of this genre are and what the limitations are. In the example of *Twitch.tv*,

the streamers are in the "messing around" phase; they talk their way through the experience of

the game, reveal their thinking, and challenge themselves. Finally, the "geeking out" phase

represents full commitment to the environment of the genre. Instead of exploring the environment, those who are "geeking out" are actively working to manipulate the environment, to theorize about it, to push and reform the boundaries. This involves "breaking, circumventing, or rewriting, the rules" (Itō 71). It is here in the "geeking out" phase that we see the most impressive, creative and thoughtful work. In fan-fiction communities, YouTube remix communities, and modding databases for popular videogames, we see the product of hundreds on hundreds of hours spent in this creative, fully engaged, "geeking out" mode. These modes of engagement occur in multiple forms across different communities and genres of work and play, but they all function in similar ways: guided and fueled by self-driven interest, curiosity and communal involvement, the path from passive enjoyment to active exploration to intense engagement happens organically.

Itō's ethnographic study turns to games and virtual worlds. Here the "hanging out, messing around, and geeking out" framework is easy to see: level one interaction, "hanging out," occurs in solitary gaming and is often seen by players as a way to relax and kill time. Level two is social and involves actively playing with friends and getting involved in the community. Level three, "geeking out," involves deep immersion in the game, its mechanics and cheat codes, the wider context of the game, and engagement with the wider community associated with the game (Itō 209). It is here that Itō focuses:

> *Another important dimension of recreational gaming is that the social*
>
> *relationships and knowledge networks that kids develop often become a*
>
> *pathway to other forms of technical and media related learning. […] As*
>
> *with other forms of interest driven practice that we examine in this book,*

these are contexts that exhibit peer-based learning and knowledge

sharing that are driven forward by the motivations of kids themselves.

These dimensions of peer based learning and the honing of expertise

become even more pronounced when we turn to some of the genres to

follow, such as organizing and mobilizing and augmented gameplay.

These learning outcomes of recreational gaming call attention to the

social and technological contexts of gaming practice rather than focusing

exclusively on the question of the transfer of game content to behavior

and cognition. (Itō 213)

Jenkins studies the dynamics of fan and passion-driven creativity across networks as well. In his study of what he calls *Convergence Culture*, Henry Jenkins cites that nearly half of all teens in America are involved or have been involved in the process of creating and sharing media content. Through websites and communities that promote the practices of sharing and remixes, a rich participatory culture is founded and driven by social affiliation, the ability to find and express one's self, collaborative problem solving as communities add to each other and mentor each other, and circulation, which keeps the flow of information and entertainment constantly alive and refreshing. Jenkins finds that interaction in these co-creative communities, which spring from and revolve around "fandoms" relating to TV shows, books, movies, hobbies, and videogames, calls upon and hones a mass of new skills that constitute digital literacy and the skills one needs in the modern, connected workplace. In considering the creative and collaborative work of these fan cultures, Jenkins finds forces of intense, critical, creative, engaged work that give us new ideas about how learning can happen and how people can come together:

[While] just studying fan culture helped us to understand the innovations

that occur on the fringes of the media industry, we may also want to look

at the structures of fan communities as showing us new ways of thinking

about citizenship and collaboration. The political effects of these fan

communities comes not simply through the production and circulation of

new ideas (the critical reading of favorite texts) but also through access

to new social structures (collective intelligence) and new models of

cultural production (participatory culture). **(Jenkins, Convergence**

Culture 246)

 In these "Knowledge Communities," people get together around shared intellectual interests, and "members work together to forge new knowledge often in realms were no traditional expertise exists," communicating in ad-hoc, transient relationships and collaborations that are "at once communal and adversarial" (Jenkins, *Convergence Culture* 20). The skills involved here include the ability to play and experiment in one's surroundings to identify problems and explore the environment in order to find ways through them; performance, to adopt identities and be able to impress, entertain, convince, and/or participate effectively; appropriation, the ability to read, sample, and remix content to add to the development of the community; multitasking; the ability to use and contribute to collective intelligence; and negotiation, the ability to navigate across diverse communities and communicate across multiple perspectives (Jenkins, Purushotma, et al., *Confronting the Challenges of Participatory Culture* 4).

The skills used here, Jenkins argues, are honed in paradigms that subvert values that traditional education holds, especially in terms of authorship and expertise. Where schools privilege singular authorship and information that is validated by the "credentialed expert," work on the internet rises across authors, who freely copy from each other, sometimes giving credit, sometimes not: the work changes and develops mimetically as it inspires new versions/interpretations/remixes. The thinking in the academic apparatus is validated and privileged, but across the internet, the thinking must defend itself, getting shaped and reshaped as it resounds across the audiences:

> *The expert paradigm . . . uses rules about how you access and process information, rules that are established through traditional disciplines. By contrast, the strengths and weakness of the collective intelligence is that it is disorderly, undisciplined, and unruly. . . Each participant applies their own rules, works the data through their own processes, some of which will be more convincing than others, but none of which are wrong at face value. Debates about the rules are part of the process. . . experts are credentialized; they've gone through some kind of ritual that designates them as having mastered a particular domain, often having to do with formal education. While participants in collective intelligence often feel the need to demonstrate or document how they know what it is they know, this is not based on the hierarchical system, and knowledge that comes from real life experience rather than formal education may be, if anything, more highly valued here. (Jenkins, Convergence Culture 53–54)*

Similarly, Axel Bruns outlines a move from the paradigm of "industrial production," which functions on a linear movement of distribution from producer to distributor to consumer (Bruns 9), to "produsage," which functions on a recursive, circular movement of content that blurs the lines between those who produce and those who consume. Instead of being either a producer or a consumer, users become participants, engaging in both production and consumption through engagement in the community:

> *The reality of user-led content creation communities is substantially more complex - rather than falling neatly into an either-or dichotomy of "these two great demands of life--production and consumption, work and play," participation in these social spaces spans a continuum stretching evenly from active content creation by lead users through various levels of more or less constructive and productive engagement with existing content by other contributors, and on to the mere use of content by users who perhaps do not even consider themselves as members of the community. Users are able to move smoothly across the continuum, without so much as noticing (or concerning themselves with) the fact that their participation has contributed to the overall, communal, collaborative process of content creation. (Bruns 18)*

In produsage spaces, those who consume media are invited to take part in the media, to cross genres as they reframe, remix, write sequels, and produce new media spinoffs inspired by the work. This content continues to invigorate the culture of creation and inspires new work yet again.

This new paradigm of distribution is characterized by the following changes to the nature of media in networked communities:

- *Access to information sources takes place on information-pull basis rather that the product-push model of the traditional broadcast and print mass media.*

- *Access to the means of producing and distributing information is widely available.*

- *The same technology which makes possible many-to-many communication and distribution of contents also enables peer-to-peer modes of organizing collaborative engagement of communities and shared projects.*

- *In its digital form, content (whether representing information, knowledge, or creative work) is easily and rapidly shareable, and can be modified, extended, recombined. (Bruns 13–14)*

These changes mark challenges to the status quo that challenge and subvert the values of previous, hierarchically organized paradigms, offering alternatives to the status quo which speak to Pierre Levy's model of collective intelligence:

This is set to have profound implications on our present-day cultural and societal systems, as well as - more prosaically - for the industrial and

institutional structures which support them. Networked community

intercreativity, participatory culture, and what we will describe more

systematically here as the collaborative produsage of information and

knowledge by 'hive-mind' communities, may have the potential to bring

about the development, from the myriads of small contributions by

individual participants in the 'hive-mind,' of a networked, distributed,

decentralized collective intelligence, as Pierre Levy has suggested. (Bruns

18)

James Gee agrees, offering that in many ways, digital media brings back the strengths and

advantages that we had when we lived in only an oral culture. Language and information is being

brought back to "conventional, interactive, here-and-now foundations" (Gee and E. R. Hayes,

Language and Learning in the Digital Age 12). In other ways, the changes that digital media is

having on the world are similar to the changes that the rise of literacy had on the world: It's

allowing for a much faster and wider spread of information (88). This is leading to shifts in power

that challenge the authority of the expert and the institution. Gee writes that through countless

social spaces including Facebook, Myspace, and Twitter, people are forming their own global

networks and passionate affinity spaces. Although Facebook, Myspace, and Twitter are owned

by corporations, the nature of these groups are hard for institutions to control: "Control in the

digital world is much less top-down and interactively negotiated than in the literate social

formation" (126). In these groups, knowledge, content, and ideas are created that can compete

with the professionals and experts. In this digital world, the everyday person can have a voice,

have an audience, and produce content, interpretation, and/or meaning (126). This, Gee believes,

is an empowering notion. As we've explored in "Bursting the Bubble," however, there are many factors on the internet that limit or subvert its emancipatory potential, and many ways that control in the digital world is reaffirmed through biopolitical means. What we can do as teachers, then, is attempt to understand those qualities that may have emancipatory effect when put in play in the classroom, while keeping into focus—and engaging in discussion with the classroom—the harmful and oppressive effects of social networks.

This leads us to our pedagogical argument: If schools really are intent on creating autonomous learners who are able to work, develop, and grow in the modern, connected workplace, Gee, Itō, and Jenkins argue, they will have to learn to teach students to learn in the ways that they are learning, communicating, and working outside of school. This will involve reconsidering traditional values without labelling the students who subvert them as "cheating:"

> *So far, our schools are still focused on generating autonomous learners; to seek information from others is still classified as cheating. Yet, in our adult lives, we are depending more and more on others to provide information we cannot process ourselves. Our workplaces have become more collaborative; our political process has become more decentered; we are living more and more within knowledge cultures based on collective intelligence. Our schools are not teaching what it means to live and work and such knowledge communities, but popular culture may be doing so. (Jenkins, Convergence Culture 129)*

What is needed here is a paradigm change. In *Language and Learning in the Digital Age,*

James Gee and Elisabeth Hayes focus on a historical overview of the nexus of literacy, reading,

writing and power. Before literacy, information was passed through oral practices. Questions of

validity would be arbitrated by localized authorities. In the world of science, personal, informal

observations and narratives were valued. But the rise of literacy allowed for the widespread

dissemination of information. This could be dangerous--information could outrun its context. In

order to control interpretations and validity, the power of the authority rose to wide-spanning

institutions (churches, courts, legislative bodies, etc.) which provided "official" interpretations.

The culture of science moved in a similar direction--as the rise of literacy allowed information was

able to spread farther and faster, the need to standardize these observations lead to the creation

of what Gee calls "Big Science" (Gee and E. R. Hayes, *Language and Learning in the Digital Age*

102). The non-professional, or non-expert, was driven out of value and out of business (101). It

is here that Gee mentions the theoretical perspective of "New Criticism," where a small number

of elites held all the "correct" answers about literature (42). But these institutions are dangerous.

Gee says that they are literally killing us--that "the world is too complex for this old-fashioned

notion of experts" (44). In this world, the knowledge of the crowd is revealing itself to be more

accurate than the knowledge of any single expert (45). Gee focuses on schools, and explicates a

number of ways that schools are going about education all wrong. The academic essay is a school

construct that asks for formulaic language produced without individualism or passion; wrapped

in the careful standardization of the institutions. But Gee argues that there is no such thing as

disconnected writing in the real world. Gee elaborates that students are taught basic skills

without context, where "it is never really clear to children about how what they are learning is

tied to actual practices or who uses them" (62). He also criticizes standardized tests, as they are

built on the notion that some national company in a different state can produce a more accurate evaluation of a student's knowledge than the teacher who teaches that student (68). There's a better way to learn, Gee says, and it involves something Gee calls "Passionate Affinity-Based Learning," when people gather together (either in person or online) over a shared interest, and work together to create knowledge about / work on it. The internet has been a great source for this, and whether people are coming together to discourse about cats, create clothing for The Sims, or theorycraft advanced data in World of Warcraft, productive and advanced passionate affinity spaces can be found all over the internet.

Synthesizing these studies of fan culture, network dynamics, creative "produsage," and Affinity Spaces, then, we can outline the most important elements of the kind of space we want to create in the classroom, which is built around the values that inspire deep, creative, engaged, student-centered work and subvert current-traditional models of education. I should note here that I am pointing to the positive values of types of work found within the internet. In pointing these out, there are two caveats that must be explored, each moving in a different direction: One, it must be restated that we are not interested in specific technologies as much as we are interested in the values that have been identified in the movements of fan and passion culture *around and across* these technologies. Simply putting students on the internet will not create these values: they have to be purposely identified, discussed, and practiced, and that can be done in conjunction with digital genres or even apart from them. Two, discussion of these values does not assume that the internet contains only these positive forms of connection and construction. For every positive value and space on the internet, there is (to perhaps an exponential degree) negativity, toxic behavior, trolling, and echo chambers confirming and amplifying our worst traits

as a species. Thus, we should explore the following terms with an awareness that they can help

inform our teaching values, but they must be considered realistically and critically. That said, the

Classroom Passionate Affinity Space is fueled by the following values:

Passion Driven: Work in this space is driven by passion. In all creative spaces found across

the net, users create from an internal desire: they are curious, or inspired, they are fans of the

world, or genre, or topic, or characters. The passion unites collaboration across spaces, genres,

and demographics. It is the passion that allows for student-centered, intrinsically motivated work;

if the student has passion in the thing that she is creating, a teacher will see the student put it

levels of work that may fly far above and beyond expectations. This may be the hardest element

to create in the space, and indeed, educators have been struggling with finding ways to effect

student passion for decades. If a teacher feels passion about the work and shares her own

passionate approaches, this may be infectious. However, the only true path to passion, I believe,

must come from within each individual student. The students must be given autonomy and choice

in their assignments. They must be allowed, encouraged to, and trained how to use assignments

for opportunities to investigate the topics, conversations, genres, and mediums they are most

interested in.

Inspiration, copying: In traditional education, the notion of copying is frowned upon, if

not treated as a crime which can ruin one's academic career. And yet in many online spaces,

copying is a commonplace occurrence. Programmers borrow snips of code, memes are recycled

and reproduced, content is remixed and appropriated. The practices of copy/paste literacy (Itō

256) allow for apprenticeship in advanced concepts: a student copying CSS in order to make a cool

design on her website may not fully understand the complex code she is using and would not be

able to write such code from scratch, but in learning how to modify the code in order to make customized changes, she will gain an understanding of complex systems from the inside-out, with each step contextualized in the light of the hands-on project she is working on. While we as educators must help our students understand the consequences of plagiarism, we must also understand that there are benefits to copying and that copying fuels a great portion of the creative work found across the internet. We must teach our students to navigate the at times conflicting expectations of different discourses, to produce both as digital natives and academic professionals.

Engaged Audience: The audience in the Passionate Affinity Space is real and active through the creative process. In networked spaces across the internet, work is done alongside and for an engaged community of creatives across a spectrum of levels of engagement, experience, and expertise. Work is responded to, is modelled, is mentored and appreciated. In a classroom, great emphasis should be placed on cultivating an engaged, constructive atmosphere of response and collaboration, where the input, ideas, and experience of each fellow student is read with the same degree of importance as the teacher's. Students should be pushed to think beyond writing and working simply "for the teacher" and instead to engage with and for the community of the classroom (and even beyond), understanding via the mantra of collective intelligence: nobody (not even the teacher!) knows everything, everyone knows something, and great things happen when we all bring our experiences to the table.

Relevance/Future/Publishing: Work in the Passionate Affinity Space is done with an eye for participation in the professional discourses that exist beyond the confines of the classroom. People who work in Passionate Affinity Spaces are aware that they are building skills that will help

126

them across disciplines and are producing artifacts that have a future—artifacts which will be consumed, appreciated, published, and/or sold to real people. Classroom assignments in a Passionate Affinity Space pedagogy should always make clear that the genres being worked on are real-world genres, that the students are cultivating 21st century skills that will help them not only in other classes but in the variety of hobbies and professional activities they will engage in outside of school. With the presentation of a final portfolio, a final presentation or mock interview, and/or work with or connections to real members of the community, students can be made aware of the connections and purposes behind each assignment in the class.

Compatible across networks/genres: Work done in the Passionate Affinity Space transcends specific genres. Those who create across networked communities do so by drawing from different affinity spaces, with each space offering its own ways to share information, its own rhetorical possibilities, its own styles of learning. In a classroom, a teacher can communicate the value of learning how to create across platforms, stressing that the act of writing is intermingled with reading, responding, and making, and one will grow as a writer as one continues to learn to navigate different genres and discourses and gain mastery of the *various means of persuasion* made available to them.

Critically Aware: People who work within Passionate Affinity Spaces do so feeling empowered to read, communicate, and produce for themselves, on their own accord, in the directions and topics that are relevant to them. The traditional educational apparatus tends instill notions of discipline and routines; students are trained to listen to the teacher, who holds the answers, and do what the teacher wants, in the ways that the teacher wants. This works against intrinsic motivation and depowers the student. In order for the student to take initiative in the

student-centered nature of the Passionate Affinity Space, we can borrow from critical theorists such as Patricia Bizzell, Ira Shor, Michael Apple, and Paolo Freire, who argue that students need to learn how the "hidden curriculum" works to keep the students in certain positions, how discourses seek to moderate power by determining who can be an 'insider' and an 'outsider,' and how the act of education can be seen as acts of discourse mastery. By teaching students to become aware of how these systems operate and by encouraging students to take on positions of power within the classroom—by embracing the value that students can bring to each other's work or to the collective intelligence process, by offering ideas and modifications to classroom assignments, and by participating in the evaluative process, students can be empowered to take advantage of the Passionate Affinity Space.

A TURN TO GAMES AS SPACES

The environment of creation is best made visible when one thinks about the kinds of engagement that can happen in videogames. Videogames invite passionate and creative involvement as they naturally draw players through Ito's three stages of Hanging Out, Messing Around, and Geeking Out. The game invites interest, exploration and passive play. The game then challenges the player as she discovers the goals, rules, and limitations. Then, finally, the game serves as canvas for engaged study in coding and modding to break the rules and expand or reshape the game to the player's desires. Cynthia Davidson, Ian Bogost, and Sasha Barab have contributed great ideas to help forward the understanding that games are more than a simple distraction for kids. Davidson explores the game as a site which sets a stage of possibilities which are then lived and experienced by the player:

Consider Pokémon, for example. A five-year-old Masters the equivalent

of the third grade reading vocabulary in order to play online and also

customizes the game with digital graphic tools that, only a generation

ago, would have been considered sophisticate for professional designer.

That five-year-old makes friends online through gameplay that requires

memorizing hundreds (the number expands every day) of characters with

different attributes and skills and learns how to fix, customize, program,

or hack a computer in order to participate in this compelling online world

of play. You do not have to force a child who is interested in Pokémon to

practice at the computer. Technical skills, programming, literacy,

socializing, aesthetics and design, narrative making, socializing, and fun

are woven together, and, for many preschoolers, the only brake is the

parent who worries about the child spending too much time (or money)

on Pokémon. (Davidson and Goldberg, The Future of Thinking *21–22)*

The resulting experience arrives out of the combination between the game's world and the player's actions. In this sense the game manifests new results with its dynamic relationship between reader, who is engaged in performative play, and the text, which functions as a world that reacts to her choices. Ian Bogost's concept of "procedural rhetoric" resonates here. In *Persuasive Games,* he shows how certain games can function to give a rhetorical argument not through a direct narrative, but by having the player learn the world that she is playing within and the systems that control it (Bogost 6). In the game *September Twelfth*, for example, the player is

presented with a Middle-Eastern town and is told to eliminate the terrorists found walking about alongside civilians. By clicking on the screen, an explosion occurs. A player will at first attempt to eliminate the terrorists by clicking on them, but will soon learn that every click will necessarily involve the death of innocent civilians. This galvanizes the citizenry and the player will quickly find more terrorist units walking around and fewer citizens. If, however, the player does not click anywhere, does not bomb the town, the player will see that number of terrorist units slowly dwindle away. The lesson here is simple and straightforward, but, unraveling through the process of play, it carries a powerful and interactive affect (Bogost 98). Sasha Barab's *Quest Atlantis* is also designed to educate the player not through direct narrative but by having the world react naturally and organically to the player's choices. In a unit about *Frankenstein*, for example, players are situated in Mary Shelly's world. They interview townspeople, learn about Doctor Frankenstein, and eventually find themselves in a position to have to make choices, with the health of the city, the life of the monster, and many other factors visibly affected by the results of their choice. The game, when coupled with good discussion and ample writing, leads to critical thinking about racism, economics, and history, with, Barab et al. find, concrete pedagogical results:

> *[In a game,] accountability is not based on an external test, but on the consequences of one's choices. In this context, students learn how to investigate and pose solutions—and they learn what it means to be historians, scientists, or mathematicians. Students often find a passion for curricular content and begin to see themselves as capable of solving interesting problems. We believe this kind of approach truly ensures that*

no child is left behind because it offers students opportunities to engage with curricular content and appreciate that content's value. As part of our Quest Atlantis project (see www.QuestAtlantis.org), we have designed hundreds of gaming activities to teach disciplinary content, which have been used by thousands of children around the world. Through our study of students' practice, we have developed a new theory about how students best learn. What we seek to foster in students is something we call transformational play. . . The students who used Quest Atlantis learned significantly more science concepts than the traditional classroom students, showed higher engagement, and demonstrated increased intrinsic motivation. When these groups were tested two months later, the students who learned through the virtual game remembered more science content than the traditionally taught students did. **(Barab, Gresalfi, et al., "Why Educators Should Care About Games" 1–2)**

There are plenty of other games out there that can create powerful and memorable experiences which will lead to reflection and discussion that would fit in easily with many learning objectives. *Papers, Please,* for example, puts the player in the shoes of a border-crossing immigration officer who has to examine the documentation of a line of desperate immigrants and

determine who gets to go through and who does not. The player has to make hard choices, and the fate of the player's character also hangs in the balance. [3]

It may be argued here that there is near unlimited rhetorical and pedagogical potential to be found in the shifting relationships between the author, the game/game world/systems of the game, and the player/players/networks associated with the game. However, although these games can be host for powerful and dynamic experiences, in some ways they are limited in that they can only display the possibilities that the author of the game allows for or is able to conceive of. With these games, the work that really achieves the explosive, self-driven, creative potential that we are looking for often occurs in a meta-layer, external to the game, in the collaboratively driven communities that produce mods, guides, strategy discussions, etc. This is of great pedagogical potential, and teachers should tap into this fan-driven means of finding passion and exercising networked creativity. However, what interests me more as a teacher is not the experience of *playing* the game—though that can be very powerful—but instead the experience of *making* the game. It is much rarer that a game serves as an environment that allows this kind of work to happen within the game itself, made with the materials of the game's world. Though rare, these games do exist, with Minecraft and Second Life coming most readily to mind. Both of these games are open-world games that allow a player to create a character, explore collaboratively, and then, after learning how the world works and how to manipulate the materials within the world, the player can then build within and expand the world.

---

[3] See "Papers Please," available on multiple consoles, at http://papersplea.se/.

This brings me, finally, back to the MOO. Looking back, we can see that the MOO hits most of the points described in the previous paragraph. It's a world that will hold limitless possibilities for students; together they can explore, write, program, and build the world around them within a community. Students can design adventures, play with identity, craft out their homes, express themselves, argue and debate; they can create the world of Mary Shelly's *Frankenstein*, build a talking Frankenstein bot; they can use procedural rhetoric and create experiences designed to persuade through acts of play. And, I argue, a return to text brings a greater accessibility; sweeping worlds can be created simply with words.

However, it is true that we are in a different generation of networking and computing now, and the MOO, exciting as it was in the '90s, needs to be updated in order to be engaging to this generation of students. To this end, here are the following updates I would want to give a MOO for the 2010s:

1. Ease of access. Old MOOs run on TELNET architecture that most students do not know how to navigate. The expectation for apps today is that they work over the web browser. If the coding of the MOO were ported over to HTML 5, a student could log on to it just by typing in a web address.

2. Multimedia extension. While I still want text, and its complex, narrative possibilities, to be the backbone of the MOO experience, it is true that we are now in multimodal age, and the creative work that happens in communities all over the Internet transcend and combine genre. To that end, the MOO should be able to support multimedia elements such as music, pictures, and video. These multimedia elements should be smoothly integrated into the world, reinforcing

its internal consistency: soft music that plays in one room, for example, should only be heard when the player is inside that room. Images should fade in smoothly alongside the text.

3. Accessible Coding Language. Drawing from Amy Bruckman's MOOSE Crossing, redundant operators and characters should be taken out of the code base, opening the material of the world to as wide an audience as possible. Coding should be done in a separate window and edited freely, like a text document, rather than through the clumsy, line-by-line process of old MOOs.

4. Exportability. A key element of work across affinity spaces is that it can be distributed and shared across genres and communities. In a traditional MOO, the work created within the MOO is accessible only to those who have characters within the MOO. This severely limits the potential audience of the work, which is a key element of networked produsage spaces. If the artifacts in a MOO could be exported, distributed, even published as standalone interactive texts, the work within the MOO would be invigorated with real-world relevance, subject to expanded audiences for revision and extension, and able to contribute to growing produsage communities.

To fully understand the potential of the work created within the MOO, we will move into Chapter Four, which engages in an exploration of texts as spaces, worlds, and environments.

CHAPTER FOUR: LEARNING IN

GAMEWORLDS

I turn now to studies of games and gameplay, with a focus on pedagogies that revolve around games as virtual environments for learning. The argument that arises from this is that people can learn complex systems best by being inside the ecologies they operate within. In this turn I step through conversations revolving around games and education that are prolific with approaches, studies, and debates, revolving around the terms—among others, *edutainment, serious games,* and *digital game-based learning.* I will end up focusing on a small subset in these conversations where they overlap with constructionist, microworld pedagogy. But the wide strokes in this conversation are important to lay out.

From chapters one through five, my dissertation resonates with the desire to consider the ways that students learn and engage outside of school and use these values to inform new pedagogies within the classroom: this is not a new idea, and indeed, calls to bring the fun of gameplay to the learning process are as old as the rise of videogames themselves. In "New Technologies for Cultural Consumption," Michela Addis describes a call for "edutainment," a concept that represents the mashing of these two categories: education and entertainment. Addis, drawing from Howard Reingold's idealistic and excited ideas about the potentials of *Convergence Culture*, describes the concept as a "phenomena of sector convergence" (2), where edutainment arises as a subset of two important discourses that continue to evolve alongside each other. Edutainment presents the potentiality of virtuality and interactivity, combining the

information and growth of education with the reflexivity of the growing genres of entertainment (4). The concept, Addis offers, nebulous and prone to difficulties as teachers work to figure out the right ways to combine games and education, but the potential is what is important here: "The real risks and negative effects are however connected to the incorrect application of technology and not to technology itself. Multimedia applications, connectivity, and interactivity make technology a variable (not a means) whose effects enrich the experience and its value" (5). A similar impulse can be seen in the rise of calls for "serious games," which also represent the convergence of entertainment and education with a focus on games built for education, with the idea that it can be possible to combine the best of both worlds. As Abindra Ratan describes:

> *Educators, health advocates, and CEOs of nonprofit organizations are joining industry officials and game designers in advertising the assumed superiority of serious gaming as an innovative means to educate the public. Indeed, interactive games may prove more effective than other educational technologies and traditional pedagogy. . . Games technology would, so the assumption goes, provide the entertainment frame in which serious content could be embedded, resulting in the emergence of serious games as a distinct genre in the world of interactive media. (10)*

Serious Games, the argument goes, would entertain and engage students while having them build the skills and knowledge needed for their continued education.

However, this discourse is not without its detractors, who primarily take issue with the idea that "serious games" and "edutainment" are a new genre and demand new products; the

call for "serious games" as a new category excludes the educational possibilities of the thousands

of mainstream games that, though they may not have been built by educators or specifically for

educational purposes, nevertheless manage to engage people in deep, connected environments

which involve learning and the development of skills, as explored through Mimi Itō and Henry

Jenkins in the last chapter. A second problem emerges in the fact that game designers who try to

build "educational games" tend not to have the pedagogical theory needed to build games that

educate in student-centered, engaging ways, but instead tend to think of education through a

current-traditional lens that often lends itself to "kill and drill" styles of gameplay. On the other

side of the coin, educators don't have the experience, time, and resources that go behind the

development of the triple-A games that draw in the crowds of engagement and attention we see

in gaming communities. In "From Edutainment to Serious Games," Dennis Charsky meditates on

this issue and pulls a phrase from Papert:

> *Seymour Papert (1998) referred to edutainment and instructional*
>
> *computer games as Shavian reversals. Shavian reversals are offspring*
>
> *that keep the worst traits of the parents and lose the good traits.*
>
> *Edutainment is the combination of one of the lowest forms of education*
>
> *(drill and practice) with less than entertaining game play. As video games*
>
> *have progressed from the simplistic (Pac-Man, Space Invaders) to*
>
> *complex (Civilization IV, EverQuest) and education has emphasized more*
>
> *constructivist learning methods, there has been a parallel progression*
>
> *from developing edutainment to creating serious games. (178)*

In Charsky's model, "serious games" here represent steps forward from edutainment, where "the dramatic shift in design of instructional games from edutainment to serious games while using the same game characteristics requires a reanalyzing of the game characteristics to determine how learning can occur in serious games" (179), yet still, it is argued by others (and I tend to agree) that attempting to draw boundaries between "regular games" and "educational games" does a disservice to both sides: the educational games will struggle to engage, and the regular games' educational potential will be overlooked. To take this further, Mitchel Resnick argues in "Edutainment? No Thanks" that such boundaries miss the point of games in education. The problem, Resnick argues, is that edutainment artifacts maintain a separation between learning and play and carry the assumptions that the former can't be fun, is a "bitter medicine" that needs the "sugar-coating of entertainment to become palatable" (1), and that the latter cannot by itself involve learning. Beyond this, Resnick the whole endeavor of creating serious games or edutainment involves focus on the wrong subjects: such an approach asks educators and game designers to do the work and frames students as passive consumers, without an empowered approach to their own learning:

> *I also have a problem with word "edutainment" itself. When people think*
>
> *about "education" and "entertainment," they tend to think of them as*
>
> *services that someone else provides for you. Studios, directors, and actors*
>
> *provide you with entertainment; schools and teachers provide you with*
>
> *education. New edutainment companies try to provide you with both. In*
>
> *all of these cases, you are viewed as a passive recipient. That's a distorted*

view. In fact, you are likely to learn the most, and enjoy the most, if you

are engaged as an active participant, not a passive recipient. (1)

Instead, Resnick argues that we should think of games through a framework of "playful learning;" we should think about how games, however the intent of their design, stimulate curiosity, engagement, trial, and error. Richard Van Eck ends on a similar move in his exploration of the field of "Digital Game-based Learning." Van Eck argues that, after years of shouting to the fields of education that games can be good for learning, we now suddenly have everyone's attention, but now we must think about how to actually achieve this potential, not just argue that the potential exists. Van Eck also references the problem that Papert calls "Shavian reversals," where without careful thoughts, educational games become both boring and involve "drill-and-kill learning" (3). In a review of the state of the field, Van Eck offers three general tracks that researchers have taken in regards to Digital Game-Based Learning (DGBL): "have students build games from scratch; have educators and/or developers build educational games from scratch to teach students; and integrate commercial off-the-shelf (COTS) games into the classroom" (6). Van Eck argues that the second option is the one fraught with the Shavian reversals, for the reasons previously explained, and lands on the third option as the best way to engage students: to take existing games and incorporate them into the classroom; to tie them into class standards, treat them as texts, and get students to engage with them critically. I am generally very much with this approach, but for me, this doesn't go far enough. Learning how to read and talk about games, to me, is the first step. Applying those lenses to the creation of one's own games and environments would be the next step, and would involve all of the bottom-up, creative learning theory explored thus far. Van Eck dismisses this first option—having students make games—as being outside the scope of the

students' abilities and resources. It is here where I would situate my work: not only is this first option much more accessible than Van Eck realizes, it's much more powerful.

By interrogating, playing, and building within these systems that are connected through the ecology, learning happens in a contextualized, bottom-up, "environmental" fashion. The studies for this are promising: In *Worlds in Play: International Perspectives on Digital Games Research,* Castell explores an assignment which askes students to build interactive stories in a classroom community (297). The Benefits, Castell argues, of asking students to build "imaginative worlds" (285), are threefold: they improve skills in digital communication, they scaffold the logical thinking skills of programming without "the stigma of computer programming," and they serve as a mechanism for creative expression (286). In this blend of creativity and computing, students learn both logically and creatively. Students were able to get started quickly, as Interactive Fiction stories require little setup and provide immediate feedback, and were soon involved in deeper activities such as complex plot work and the establishment of characters and environments written with great detail (296). Castell reports that students were highly motivated and showed excitement in the story-writing process, and also formed a community of increased collaboration, with sharing, demonstration of new ideas, and conversations that revolved around the critiquing and development of both literary and technological skills (297). In the self-reflection of this activity, however, Castell meditated on the workload and time requirement of playing through each student's interactive story, offering in the end that this work may be alleviated by increased workshopping practices and distributing the feedback and evaluative processes across the classroom. Similarly, In "Games as Platform for Situated Science Practice," Rikke Magnussen offers that science education can best be achieved by using games to situate students in virtual learning

environments. Traditional science education, she offers, does little to help students learn. With a focus on the memorization of facts, students are given little opportunity to engage in ownership of the information or to build a practical understanding of the content. Yet science practiced outside of the educational apparatus is contextualized, is hands on, and is situated in an environment of creation alongside a community. Learning in this context, Magnussen argues, is "embodied" (299). By creating an environment where students can learn how systems are connected, students will come to knowledge that is "material, situated, and embodied" (299). Games, Magnussen offers, may be the model to which this learning can happen. In games, students are involved in virtual environment that operate on interconnected systems:

> "Digital game media well suited for simulating complex rule systems and real-life settings. Digital games offer a medium equipped for complex simulations integrating many different aspects of real-life learning environments and framing them in a graphical simulation the player can identity with and relate to." (299)

James Gee makes a similar argument. In "Are Video Games Good for Learning?", Gee answers the title's question with a *yes*, with two claims: One, that the structure of commercial games involves a kind of learning that is "supported by research in the Learning Sciences," and two, that videogames offer the potential for building "new learning systems" that can serve "serious purposes in and out of school" (Gee, "Are Video Games Good for Learning?"). Resonating with Magnussen, Gee meditates on the scientific process outside of the classroom through immersion in hands-on environments. Scientists, Gee offers, put themselves into the "world" of the science they are exploring. Scientists "talk and think as if they were inside not only the

simulations they build, but also even the graphs they draw" (ibid.). Through interaction in the simulation of the objects of study, scientists gain a deeper, embodied feel for how the different variables are interacting in and through complex systems. Gee explains the learning theory as such:

> *Human understanding is not primarily a matter of storing general concepts in the head or applying abstract rules to experience. Rather, humans think and understand best when they can imagine (simulate) an experience in such a way that the simulation prepares them for actions they need and want to take in order to accomplish their goals." ("Are Video Games Good for Learning?")*

Videogames, then, can serve as a means of recreating that level of immersion in the process by creating environments for embodied engagement in simulation. Gamers do this kind of thing all the time, Gee argues:

> *Gamers learn to see the world of each different game in a quite different way. But in each case they must learn to see the virtual world in terms of how it will afford the sorts of actions they (where "they" means a melding of themselves and their virtual character) need to take to accomplish their goals (to win in the short and long run). ("Are Videogames")*

Gee admits that he is not an avid gamer, and that these observations come from an outsider to the discourse. It is because of this that I note an at times over-enthusiastic attitude about the

constructive effect of games. Games can teach, but they can also fail to reach players in any constructive way; games come in all kinds and genres, and some will get some players thinking, and some will serve only to pass the time. Games can engage, but they can also alienate, isolate, or turn into hives for toxic behavior and discourse. Still, I can confirm some of the claims he makes with my own experiences of learning through gameplay. I can offer my experience with *Portal* as an example: The videogame *Portal*, for example, immerses players in environments where they must manipulate objects across space. By setting "portals" on walls, ceilings, and floors, players solve puzzles that demand an increasingly complex understanding of inertia and gravity. A voiceover in the game summarizes a learning that is embodied intuitively. After completing a part of a level that involves leaping from a height into one portal on the floor to propel one's self out of a portal placed on a wall, a voiceover commends the player and summarizes the underlying physics:

> *Spectacular. You appear to understand how a portal affects forward momentum, or to be more precise, how it does not. Momentum, a function of mass and velocity, is conserved between portals. In layman's terms: speedy thing goes in, speedy thing comes out. (Portal)*
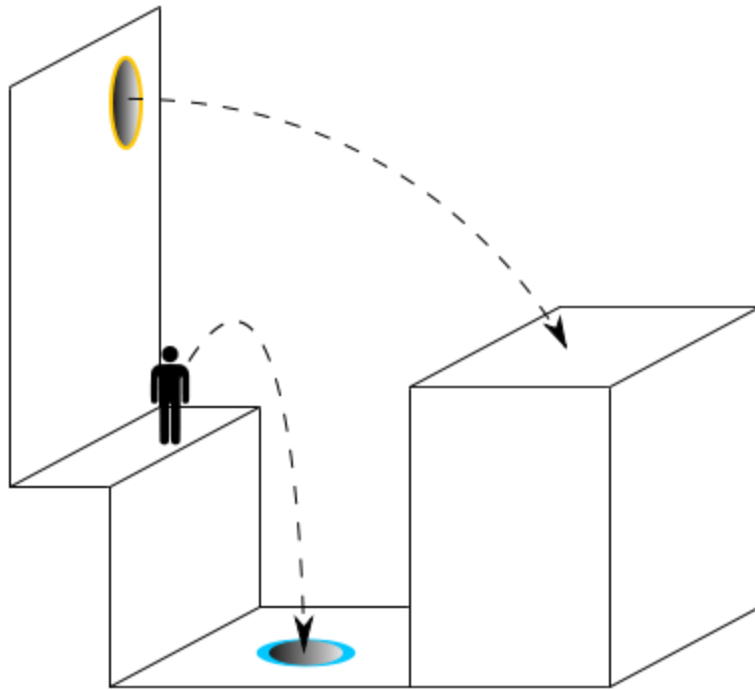
The "layman's terms" the game offers here aren't necessary, beyond the function of helping a student *articulate* what the student has already learned via an embodied process. By extending this example, we could visualize games which scaffold even more complex understanding across educational subjects: environmental science, physics, chemistry, etc. In these spaces which place students in virtual environments, students can experiment with the worlds which may not be possible for them non-digitally, either in terms of what is possible (such as shrinking down to the size of an atom) or in terms of accessibility. As Gee points out, games allow players to step into roles that would be otherwise inaccessible to them. They can take on professional roles such as those of doctors and soldiers and immerse themselves in the circumstances of the role, with bottom-up learning styles that "shape and explain how and why that knowledge is developed and

applied in the real world" ("Are Videogames"). This may beg the question: how might a student, without formal training, get anything out of the simulation of a role which requires decades of education, like that of a doctor? Two answers come to mind: first, the nature of games as seen through Mimi Ito's "Hanging Out, Messing Around, and Geeking Out" framework allows us to understand how games can scaffold greater and greater complexity. Games will start out simple; they are attractive and easy to grasp on to. However, as games progress, they build on the skills required, pulling the player into greater and greater depth. The game frontloads essential concepts and carves the space for deeper interaction with the topic. A player who becomes involved fully in the 'Geeking Out' phase of the game will invoke affinity spaces in engagement that moves far beyond the original simulation. Secondly, Gee's concept of "Smart Tools" ("Are Videogames") helps explain how simulations of advanced concepts are possible in games: in these virtual environments, there are elements designed to supplement the player, translating game actions into the actions and the knowledge required by the world. In Gee's example, a player playing an army game is guided by virtual soldiers through the mission. The player doesn't need to know how to disassemble and reload a gun—her player character manages to do this. The player doesn't need to know the geopolitics of the mission; this is the responsibility of the player's AI commander. This distribution, Gee writes, "offloads some of the cognitive burden from the learner, placing it in smart tools that can do more than the learner is currently capable of doing by him or herself" (ibid.). Though this distribution takes the entirety of the burden of knowledge off of the player, however, the knowledge is still there, still revealing itself to and immersing the player.

Gee offers that learning within these environments is effective for six reasons:

I. Video games can create an embodied empathy for a complex system

2. They are simulations of embodied experience

3. They involve distributed intelligence via the creation of smart tools

4. They create opportunities for cross-functional affiliation

5. They allow meanings to be situated

6. They can be open-ended, allowing for goals that meld the personal and

the social. ("Are videogames")

The pedagogy here isn't perfect, or foolproof, or even safely measurable or quantifiable. (But then again, that's how the best learning works, according to Papert and his Gothic Cathedral model of education.) I can't make the argument that playing *Surgeon Simulator* will prepare a student to become a doctor any more than playing the Hasbro's board game *Operation* will. What I can argue, however, is that virtual environments engage the player and put forward the invitation for deeper research and as the player moves towards "geeking out" with the game, and that movement across the "geeking out" framework will be fueled by productive styles of learning that are intrinsically motivating. These games could kindle an interest and identity for kids, and frontload procedures, connections, and vocabulary that will set them up to passionately pursue the careers they play.

Koster's *Theory of Fun* also puts forward an argument that play within game and toy environments is built on principles of learning that are fundamentally effective. Koster offers the example that learning a skill such as playing guitar requires more than just the study of knowledge:

it requires engaged practice within the discourse of play. With copious practice, the learning

happens not only through increased muscle memory, but through continued engagement in an

interconnected system of operations:

> *What is really going on is that because I have been playing guitar for over*
>
> *a decade, I have grokked enough about stringed instruments to create a*
>
> *library of chunked knowledge to apply. When I was playing the guitar all*
>
> *those years, I was also working on more obscure stuff, deepening my*
>
> *knowledge of the intervals between notes, mastering rhythm,*
>
> *understanding harmonic progression. (Koster 2)*

Koster works to blur the lines we may have between toys, games, and sports: they are all

"iconified representations of human experience that we can practice with and learn patterns

from" (2). Games involve similar immersion and engagement in connected systems; they "give us

chunks for our brains to chew on . . . In other words, games serve as very fundamental and

powerful learning tools" (32). Building on the idea that games naturally scaffold greater and

greater complexity, Koster writes:

> *Most games repeatedly throw evolving spaces at you so that you can*
>
> *explore the recurrence of symbols within them. A modern video game will*
>
> *give you tools to navigate a complicated space, and when you finish, the*
>
> *game will give you another space, and another, and another. (36)*

Koster argues that we need to embrace the learning that happens in virtual and simulated

environments, and that the learning opportunities that happen in these environments should not

be dismissed simply because the interaction in these systems is playful. Simulation is an essential component of engaged learning, and in fact, Koster offers that "exploring conceptual spaces is critical to our success in life."

When we think about the ways that games teach, we arrive at a possible fourth track to Van Eck's field of "Digital Game-based Learning:" not to play, make, or even talk about games in the class, but to learn from the ways that games engage, connect, and scaffold expertise and let those lessons inform the teaching process. As Gee writes in *Teaching, Learning, and Literacy, "*This is not a plea to use video games in school. It is a plea to use video games for thinking about and reflecting on how to improve teaching and learning, with or without games" (118). In the forward to *Games, Learning, and Society: Learning and Meaning in the Digital Age*, Gee argues that though games have content, they are not *about* their content. Games are first and foremost environments that promote exploration and action: "They are about doing, making decisions, solving problems, and interacting. Content is there in a game to facilitate and serve acting, deciding, problem solving, and interaction" (Steinkuehler et al. xvii). They do so through a naturally unfolding scaffolding of greater complexity that has assessment baked in to progress within the game. Where a school textbook is focused primarily on the delivery of content and struggles to find ways to engage and assess the reader (usually with a quiz at the end of the chapter), the game's assessment is built into the mechanics of the game itself: a game will teach a skill, and then present through the environment challenges which require greater and greater mastery and creativity of the skill. The game must scaffold this greater and greater learning while maintaining player interest. This is an essential part of effective gaming. As Gee writes:

Games are simply spaces of learning and problem solving with a "win"

condition (beating each level and the game as a whole). But to sell, they

have to organize learning in engaging and highly motivating ways. They

have to tap into the innate drive for learning and mastery that is inside

all human beings. (Steinkuehler et al. xviii)

We can return to *Portal* for an excellent example of this kind of teaching and assessment in action. Early stages in portal will have a player learning first move through portals that are set up in static locations. Later, the player will be allowed to place portals wherever he or she desires. Later, the player will be using portals and gravity in complex ways, as shown in Figure 2. At each step of the process, the assessment is part of the process; the game does not continue until the player has developed the skills and learning required to engage in greater levels of complexity. In these spaces, learning is organic, comes out through experimentation. As Richard Lemarchand writes in "Uncharted 2: Among Thieves-How to Become a Hero," "Experimentation of this kind is a fundamental aspect of the way that players relate to video games – they make hypotheses about the game and then test them out, and by doing so, they learn the rules of the game and how to succeed. Video game players are a lot like scientists investigating the world in this regard" (Davidson and Lemarchand 94).

Drew Davidson and Richard Lemarchand combine James Gee's learning principles of how games teach people to learn with Ian Bogost's procedural rhetoric. In a game where both of these factors are in play, the game forms a dynamic teaching environment where bottom-up, engaged learning styles are activated as players interact not only with each other but the "various units that procedurally interrelate together to create the experience as a whole." What happens in

these interrelationships is hard to quantify or plan for, but lead to spaces full of unscriptable

potential. Constance Steinkuehler asks us to think of a game as more than a "disparate event,"

but to consider the space(s) that the games create. What happens in these spaces, between the

procedural units, environment, and players, is much more than the sum of its parts; the games

product in this lens is not a single artifact but an "emergent culture:"

> *Games, however, are more than designed artifacts, hewn from the*
>
> *creative labors of a designated team of experienced and thoughtful*
>
> *designers. They are, in fact, emergent cultures – social groups or*
>
> *organizations that share common knowledge, practices, and dispositions*
>
> *that emerge around a given game. (Steinkuehler et al. 123)*

In this space of emergence through dynamic behavior and connection, play becomes a central

aspect of the writing and interacting process, and is how we learn: in this paradigm we are *Homo*

Ludens (104), interacting and engaging with our worlds playfully as a means of exploration,

growth, the development of skills, and learning.

Gee admits that not all the skills learned in game environments will translate over to "the

real world." But the type of learning that's happening in here is much more real than what is

sought in current-traditional teaching styles in school. Gee argues, "But the reality is that games

– which today, for the most part, involve real people collaborating and working and playing

socially with each other – are the real world" (290). Gee details Levi-Strauss' argument that myths

can be used to help us understand the world, the people who forged and passed on the myths, to

understand narrative arcs, challenges and solutions; myths in this sense are objects that can be

"good to think with" (298). Games, Gee offers, can do this too. We can learn a lot if we start thinking of games as objects that are "good to think with" and not just to play. To do so we will start thinking of new ways of learning and building knowledge.

In "Designed Cultures," Kurt Squire forwards Henry Jenkins' argument that "participatory learning occurs everywhere from sports to politics," and focuses on the ways that games create and promote engaged learning communities: "there is a deep impulse in games culture toward learning through participation. Game cultures value learning by diving in, mucking around, and joining people who know something about that topic" (Squire 825). Through this lens, the strongest learning happens not within the game itself, but through interaction with the creative, engaged community that is formed around the game. There are thriving, collaboratively created resources around popular games that are built simply around teaching players how to play the game better, including actual "online universities" (859). But to take this further, we can consider the prolific communities that are devoted to fixing, expanding, tinkering with, and modifying the original game. In "Nurturing Lateral Leaps in Game Design," McKenzie shows that modding communities operate as sites of dynamic, bottom up creation that serve as both counter-point to mainstream, triple-A games that are owned and driven by corporations, and are also the source of innovation of new types of gameplay and game structures, which eventually feed and help advance the state of the mainstream industry:

> *Mod communities have been the source of a lot of game-development*
> *experimentation. Operating largely in a noncommercial context, game*
> *mods often reuse most of the game code and art assets from the games*
> *on which they are built. At their most successful, they often create, and*

only create, new kinds of interactions and play structures on top of a

largely final base of the games on which they are built. (McKenzie 64)

The relationship between mainstream, commercial gameplay and community-centered, bottom-up creation through indie titles and fan participation is complex. Both discourses struggle for control against each other, and yet both discourses feed and inspire each other. The intricacies of this relationship are beyond the scope of this chapter, but from this I'd like to make this point: just as corporate games need to learn to embrace the fruits of bottom-up, experimental games from the community, educational institutions need to similarly embrace and explore the artifacts, experiments, and creativity that comes from these fan communities. When gaming is embraced with these values, we do not risk clumsy appropriations to incorporate "game elements" such as scores and badges to otherwise unchanged corporate or current-traditional teaching styles, as seen with the styles of management often referred to as "gamification." As McKenzie writes:

This combination of facts – the role of kinds of games as input for making

high-quality instances of games and the market's preference for well-

executed instances of games – is essential for understanding why blindly

copying techniques and processes from the game industry can be a recipe

for difficulty, especially for educational game makers." (54)

James Gee and Elizabeth Hayes, in "Nurturing Affinity-Spaces and Game-Based Learning," also focus on the concept of the game as a site, or space, which serves as potential for great engagement, community networking, and creation. Games can be conduit to "deep, often life-changing" learning, they argue, but must be conceived not only via the elements of the games

themselves but of the connected community, the *affinity space*, that gathers around the game

and is involved in writing, working with, modifying, and engaging in social practices, and otherwise

engaging in the *metagame*(s) that take place in and around the games (Gee and E. Hayes 3). Their

description of an *affinity space* consists of fifteen features, three of which I will explore here:

1. Affinity Spaces are Passion Oriented: In Gee and Hayes' analysis of Affinity Spaces, they

begin with an exploration of passion as the driving force of organization and collection: it is

"passion, not race, class, gender, or disability," which serves to unite people and form groups,

allowing groups to be composed with great diversity, enabling access to those who may

traditionally be barred from participation, and enabling each member of the space to play with

and "define his or her own identity" (10). In spaces where people across demographics can come

together bonded only by their shared interests, engagement, and passion with the topic, many

hierarchical issues traditionally inextricably fused with bodies and identities become more

flexible. "There is no assumption that younger people cannot know more than older people or

that they do not have things to teach older people," Gee and Hayes offer as example (10). In this

space, "newbies, masters, and everyone else" (11) all have things to offer. Gee and Hayes do well

to start with passion, here. In an affinity space passion must be the driving force of the group: it

is passion that inspires people to come together, to communicate, share resources, and devote

hundreds of hours to the project(s) of the space. When passion is the organizing force, motivation

becomes intrinsic. Rather than working for bonuses, grades, or as an aspect of a complex and

socially privileging schema of behavior control and obedience, work is done for the sake of itself:

the members of the space *want* to engage in this work. As Gee and Hayes argue:

School stresses consuming what the teacher and textbook say and what

other people have done and thought. When students produce (e.g., a

writing assignment), they do what they are told because they are told to,

not because they have chosen it. Furthermore, student productions rarely

become a lasting feature of school. (13)

Work done in Affinity Spaces, however, is added to the community. The work constitutes and contributes to hundred page wikis, archives of fan fiction, and elements of games and lore, continually referenced and recycled to set the stage for further remixing and exploring of the content.

2. Affinity Spaces are built on the celebration of multiple forms of information and knowledges: Gee and Hayes offer that in affinity spaces, knowledge is collected and produced across forms and modes, cultivated through both "individual knowledge," where the experiences and information of each individual is given fair share, and "distributed knowledge," where members of the space work together to further understanding, is encouraged (15). This is compared to the traditional educational apparatus, where knowledge is calcified and presented to students as a static, unchanging body to be learned: "In school, too often valid knowledge is to be found primarily in the classroom and restricted to general facts and principles found in textbooks or other 'sanctioned' material" (18). This understanding of calcified knowledge is an artifact from an increasingly outdated paradigm in and outside of schools. To return to Ulmer, the concept of an unchanging, static body of "true" information is a product of the age of "literacy," whereas the move to "electracy," brought upon by the proliferation of new styles of working with media across computers and networks, introduce new ways to communicate, express, and

explore ideas. The static block of "correct answers" of the literacy age is passed down and validated by "experts." This body of knowledge privileges a certain subset of students who are fortunate enough to be born into it, who are taught its basic assumptions as part of a passive inculcation into society's expectations and are privy to its "cultural currency." An electrate-inspired take on this acknowledges that new knowledges can come from different points of view and from identities who would never be privileged or considered according to traditional, literate paradigms of thought. This is not to say that the calcified body of legitimized information is incorrect, and certainly it is not to say that it isn't useful: our society has been built on, and functions well on, our body of knowledges across disciplines that have been honed over centuries. I'll restate here that Ulmer makes clear that one paradigm does not replace the next, but adds to it, weaves through it, presses through it "like felt." A position like this acknowledges what has been established but also nods to the post-modern skepticism of any discourse which attempts to claim exclusive and complete ownership and mastery over external "Truth." A balanced approach to this argues that we don't know everything—we can't—but what we can do is open ourselves up to everything that has been brought to the table, and to continue to let new points of view, new narratives, and new ways of working with and thinking about information inform our understanding of life.

3. In Affinity Spaces, learning is contextualized. This is important because, if it is to be effective, learning needs context and cannot be done by force. Gee and Hayes offer this example of learning in an Affinity Space:

> *In our book we discuss a woman who is a skilled and widely respected*
>
> *designer in Second Life. She failed to learn geometry well in school but*

now feels quite confident in her geometric knowledge. This woman did

not master geometry because someone told her she 'had to' or 'should.'

She learned it because she wanted to design in Second Life, and

knowledge of geometry is required to do that. (25)

Researchers of network dynamics have told many similar stories, including Knobel and Wilber's telling of "Dynamite Breakdown," who, diagnosed with ADHD, floundered in school, but when left to his own devices, became an expert in the creation of animate music videos. Dynamite taught himself how to create this work, and navigates through advanced technologies to create products that are viewed by hundreds of thousands of people (Knobel and Wilber 23). All across the internet are students across demographics who, though they have been failed by the traditional educational system, are engaged in deep, professional, creative learning that has actual, transformative results. This, to return back to Papert, is testament to the argument that if learning is going to happen, it has to have purpose and context: it cannot be delivered from "on high," it cannot be learned with transformative potential just because someone tells the student that they have to learn it. Learning comes through a messy, unscriptable process of actively working with information in pursuit of a passion: learning has to be contextualized. Affinity Spaces are built around contextualized learning. As Gee and Hayes show, knowledge gained in an affinity space is never for its own sake, but always in the pursuit of a relevant and engaging topic or project: "Indeed, affinity spaces are, in a sense, knowledge communities. Such spaces build, transmit, sustain, and transform knowledge. But this knowledge is always in the service of something beyond itself" (26).

In an exploration of learning styles in and around massively multiplayer online games (MMOs), Steinkuehler and Oh present a concept called "Mangled Play," where learning, interaction, and numerous other products, both affective and effective, are the result of "a mangle of designers' intentions (represented by rules) and player's intentions (represented by emergent shared practices of the in-game community) and the broader economic, legal, and cultural reality in which this interplay take place" (Steinkuehler and Oh 155). What happens in this cauldron of different inputs, of players bringing in their own intentions, creativity, and cultural understanding in harmony, exploration, and resistance to the boundaries and the constructions of a designed world built with designers' own intentions, creativity, and cultural understandings, is dynamic and beautifully complex, and results in experiences that are not under the control of any one person or group. Steinkuehler and Oh frame the results of this emergence as a kind of cognition, stretched across context and bodies, composed of:

> *Systems that necessarily include social relationships, physical and temporal contexts, symbolic and material resources (such as artifacts and tools), and historical change. Within such systems, cognition is 'a complex social phenomenon…distributed – stretched over, not divided among – mind, body, activity and culturally organized settings (which include other actors)'. (156)*

This distributed style of thinking resonates both with Ian Bogost's concept of procedural rhetoric—of rhetoric as emergent between units and systems inside the world of the game—and of Gee's exploration of inverted learning (and here, thinking) styles that emerge in Affinity Space environments and games. Steinkuehler and Oh use this model to propose a learning theory based

off of the concept of Joint Activity: as both students and teachers are engaged in an environment, the learning process is mutual and dynamic; the teacher adjusts the lesson based off of what is happening (emerging) via the complex interplay of factors in the virtual environment. Steinkuehler and Oh argue that such learning, with its reflexivity and flexibility, keeps the work within "what Vygotsky calls the learner's 'Zone of Proximal Development'" (165).

The cognitive fruits of "Geeking Out" in game environments can best be understood through analysis of a gaming concept known as "theorycrafting." In *Theorycrafting: The Art and Science of Using Numbers to Interpret the World,* Trina Choontanom and Bonnie Nardi define theorycrafting as "a complex social and cognitive activity derived from video games," and argue that "theorycrafting may produce or hone skills useful in educational settings and the workplace" (Choontanom and Nardi 186). Theorycrafting is a state of engagement that resonates with Mimi Ito's third stage of her "hanging out" framework. After players are sufficiently engaged with a game and are motivated, through social play, deep interaction in the world, and/or engagement with the networked "metagame" that surrounds it, to engage in deep interaction with the mechanics of the game in order to best optimize the play within the game. It is at the theorycrafting level of World of Warcraft, for example, when players work together to calculate and optimize their Damage Per Second (known as DPS) in order to achieve the greatest levels of efficiency and success for their characters. In working at this level, players will create and discuss advanced wikis that analyze the procedures and reasons for what moves to make at what times, what items to collect which complement which configurations, and even what extra-world game tools can be used in order to make better calculations. This is work that can involve deep engagement with mathematics, programming, or design, and functions both individually and

through the aforementioned concepts of collective knowledge and distributed cognition. Choontanom and Nardi meditate on how this kind of work is effective because the students engage in this deep, complex work on their own, and compare this to the modes of learning found in traditional forms of education. This learning happens not through instructions and is not represented in assignments but instead through online wikis and blogs:

> *The structure of schools and their transmission of information has not kept pace with participatory media . . . Theorycrafting, an exemplary form of engagement with participatory media, entails the use of mathematics, logic, experimental design, and writing. These are, of course, exactly the skills we strive to teach secondary students. Instead of working with textbooks and tests, theorycrafters create and present the results of their activities on websites and blogs. (204)*

This is work, Choontanom and Nardi argue, that not only speaks to more effective, intrinsically-motivated learning, but also a higher level of quality, as it emerges from engaged and thoughtful interaction, revision, and discussion across networks of thinkers, which speaks much more to "real world" research than to classroom exercises: "Theorycrafting is inherently social and collaborative – like real science[;] . . . Not only are the results of experiments presented, but they are also discussed and interpreted. Websites and blogs form a natural medium in which deep analytical work flourishes. By comparison, the mechanics of textbooks and tests appear unbending and one-sided" (204).

Barab et. al, deeply involved in how games can create effective learning environments, presents a "Modern Prometheus Design Project" as an example of their "Game-Based Curricula." Barab sets the exigency for this innovation by framing traditional education as a mindless 'transaction' of test scores and grades rather than as a system that will lead to any transformative sense of learning: "Unless we begin to engage youth in rich situations that add meaning to disciplinary concepts [,] as part of the learning process," they warn, "the content of schools will be perceived as a thing to be acquired and exchanged for a test score (having exchange value) and not as a useful tool that has direct functional value in the world or to the learner" (Barab, Pettyjohn, et al. 306). By thinking of refiguring education as conceptualizing the learning process via the creation of "worlds" in which students can live, worlds "in which their decisions and the content of schools matters" (307), Barab et. al believe that games can be host to a revolutionary new form of pedagogy. Barab's pedagogy is built on the idea that learning within virtual worlds will have deeper context and involve greater engagement; it becomes not about decontextualized knowledge that needs to be memorized but emerges through interaction with the environment. By experiencing these environments, exploring how factors are connected, making choices, and understanding the effects of those choices, Barab et. al believe that the learning in here simulates the mechanisms of real world learning: this is the kind of learning that is "transformative" and needs to be incorporated into the traditional educational apparatus:

> *Our interest is not simply in supporting knowledgeable participation within the one context but in crafting storylines and experiences that have metaphorical loft in that the learner appreciates both the immediate situation and the underlying content as having value in both*

the fictional and real worlds . . . We refer to games that integrate person,

content, and context in such transactive ways as transformative play

spaces, and our goal is to design such spaces such that the content being

enlisted is academically meaningful and relevant to the accountability

structures of schools. (310)

The Modern Prometheus Unit[4], then, "was developed with the goal of better understanding the

potential of converting a classic piece of literature into a transformational play space" (311). In it,

a piece of literature is brought to life, and students are invited to enter the world, to explore, to

make choices, and to come to understand the effects of those choices within this visualized,

virtualized literary world. Barab et. al report on student engagement that runs across a spectrum

of emotional responses: "In contrast to observations of some students giggling in round one,

students' responses in round two involved audible gasps when they witnessed the consequences

of their choices" (317). What we see here, clearly, is engaged attention, emotional connection,

and unscriptable emergent potential between students as players exploring worlds that

transmute and reinvent classical works in new forms inspired by creative and interactive genres

of the age of networked gaming.

However, I would argue that this can be taken one step further. While the Modern

Prometheus Unit achieves great success in turning traditional forms into dynamic worlds, it's

worth meditating on the idea that the world is created by Barab et. al, and speaks to a pedagogy

---

[4] See examples of this platform at https://dmlcentral.net/resources/modern-prometheus/

of creation of virtual worlds / games by teachers. This is a powerful idea and is certainly worthy

of exploration, but I would argue that to take this to the next step, we would have students engage

in this work themselves: we would have students read a book, interpret it, and then remix the

contents of the book in the creation of their *own* interactive worlds. In doing so, we can combine

the benefits of play in virtual worlds with the concept of "produsage spaces" explored last

chapter, which is compatible with an Affinity Space pedagogy. In "Participatory Media Spaces: A

Design Perspective on Learning with Media and Technology in the Twenty-First Century," Erica

Rosenfeld Halverson speaks to the learning values of the "participatory media space," defining

the term through James Gee's Affinity Spaces and Ito's "Interest-Driven networks," arguing that,

whatever they're called, they all speak to "similar ways for understanding how people participate

in legitimate social networks that revolve around production" (246). Halverson offers the

following characteristics for designing participatory media spaces in the classroom:

> *The learning environment must be structured for participants to engage*
>
> *in a cycle of conceiving, representing, and sharing a piece of digital art*
>
> *Assessment is intentionally embedded into both the process and the*
>
> *product*
>
> *Digital technologies play an integral role in the conceiving, representing,*
>
> *and sharing process. (249)*

Through these factors, Halverson details a "dramaturgical process" through participatory media

spaces where students arrive at multimodal authorship of stories through first conceiving ideas,

adapting stories and resources from what is around them, learning to represent their ideas using

different forms of digital media production tools, performing their stories, and then sharing their final products with a real audience (250). If we combine these actions with the ideas of the student-centered, bottom-up, emergent-cognition environments of virtual worlds, we can create powerful spaces for creative learning: we'll be creating Passionate Affinity Spaces.

These Passionate Affinity Spaces usually spring up not within the game itself but via interaction with the network of interest-driven affinity spaces that revolve around the game, occurring through what Gee calls the "metagame" of the game. For the purposes of this paper and project, I want to continue to delve into the creation of this kind of environment within the game/world/platform itself. It is rare that a game serves as an environment that allows this kind of work to happen within the game, made with the materials of the game's world. Though rare, these games do exist, with Minecraft and Second Life coming most readily to mind. Both of these games are open-world games that allow a player to create a character, explore collaboratively, and then, after learning how the world works and how to manipulate the materials within the world, the player can then build within and expand the world.

3D CONSTRUCTIBLE WORLDS

The focus of this dissertation revolves around the idea of creating a *space* for the student to work within. When I look back at my experiences in the MOO, a critical element of my engagement was the simulated location of my work: I was *somewhere*, digitally, I was in a virtual environment, and by virtue of that, my work, my writing, was constructive, it was playful. In the paragraphs that follow I briefly explore contemporary scholarly interest in virtual environments, much of which revolves around *Second Life* and *Minecraft.* I am going to reflect on the draw of virtuality with these platforms, but reflect as well on their limitations, most of which revolve

163

around problems with accessibility. With that established, I will make a turn to thinking about how we can capture the spirit of that virtuality by engaging with text in the same virtual and spatial way. Ultimately, I argue this: 3D virtual worlds are powerful, engaging, and exciting. But if we want our students to learn to write, we need to have them write, and we can achieve many of the same effects; we can have students play, build, and explore, *and* write prolifically in virtual text environments.

Second Life[5] is a game/platform that allows a player to design and customize a virtual avatar and then join a 3D, multi-user, virtual world that is built by the users, who import graphics, put together blocks and walls to make buildings, and model and import 3D graphics to build homes, offices, parks, and more; in this virtual environment, people explore, fly, and tinker with their identities. Because of its open-ended nature and the availability to build and import graphics, animations, and assets, the world is home to an actual economy, where artists make real-world money by selling their work, land, and creative assets to others.

---

[5] See http://secondlife.com/

Fig. 3. "Second Life." Image from Wikimedia Commons, Creative Commons License.

By situating such a virtual environment in the classroom, students and teachers are able to supplement traditional forms of interaction and education with parallel engagement in a world that allows them to interact, hang out, and build, forming connections and lines of interactions that would not be as felicitously engendered in the "real world," especially in online classes with limited or no face-to-face contact, and engage in the bottom-up, constructive learning styles explored throughout this paper as they contribute to their virtual environment, drawing, programming, and planning projects of interest. Sarah "Intellagirl Tully" Robbins offers, for example, that Second Life "creates opportunities for teacher-student socializing that simply don't exist in real life" (Sheehy et al. 41) as teachers are able to co-exist with students in this constructible world, offering their own interests, skills, and shades of their personality that may not reveal themselves in the classroom as they engage in collaborative play and construction:

Communal living in Second Life, that is, inhabiting spaces in Second Life

designated as shared social spaces rather than just living spaces, allows

students, and instructor alike, to become more familiar with each other.

It may seem strange to decorate a house that isn't directly related to your

classroom teaching but your students will surely wander around in it to

get a peek at what you're like. (36)

This revolves around the idea that these virtual co-constructive environments allow for sharing, connecting, and interacting in multi-dimensional ways, drawing new possibilities from teachers and students and what is possible in the overlap.

These new possibilities, it is argued, can serve to supplement traditional platforms such as Learning Management Systems and add new layers of engagement to an otherwise static and unengaging system. De Luicia et. al explore a digital, virtual campus that was created in Second Life, using the game as a platform to allow for "synchronous lectures and collaborative learning" (De Lucia et al. 220). The virtual campus was designed with four different zones: the student campus, modelled after a real-world university, collaborative zones, which gave students space to interact with and build alongside each other, lecture rooms, where professors could give virtual talks to students, and recreational areas (220). The project was supplemented with a "Moodle" plug in that added traditional Learning Management System (LMS) functions to the experience. Pointing out that traditional LMS systems which generally run on static web pages, do little to promote multimedia interaction or build a sense of classroom or worldwide community, De Lucia et. al argue that this "3D LMS" is better able to engage students by immersing them in a "3D multi-user virtual environment" which promotes a strong sense of tangible community and presence,

even as the players log in to this space from all over the world (220). De Lucia et. al report on favorable educational results through their evaluation of the platform, but do mention a few drawbacks that I want to reflect on. First, they mention that with 3D environments, there is a problem with accessibility: "the delivery of educational 3D environments based on virtual reality technologies can be very expensive, and, as a consequence, such solutions are not widely accessible to learners" (220). Second, they mention that attempts to recreate the classroom space and hold lectures failed to engage the students; the researchers noted that "that the exact reproduction of reality does not exploit all the SL potentialities in terms of a 3D environment in which it is possible to create artifacts free from real world constraints" (223). I note here a very important note that Amy Bruckman includes in her dissertation about the virtual world MOOSE Crossing: "To that community I would like to plead: please don't have virtual classes where students sit behind virtual desks and teachers write on virtual blackboards. To do so combines some of the worst aspects of both traditional pedagogy and virtual worlds. Children learn better by working on personally meaningful projects than by being lectured to" (Bruckman 18–19). Third, De Lucia et. al note that they had trouble smoothly integrating the use of text in the 3D world; they could program clunky "signs" that displayed text, but such uses would not work well to create narrative experiences.

Similarly, Kemp and Livingstone offer a study of using Second Life as a "metaverse skin" on Learning Management Systems. Opening with an exploration of the International Spaceflight Museum, which stands as an actual museum in the virtual world of Second Life, Kemp and Livingstone meditate on the ways that advanced, real-world convergences of expertise, architecture, education and passion are made possible in this virtual, constructible environment.

Resonating with Gee's theories of affinity spaces free from top-down control, Kemp and Livingstone offer that the museum "was conceived and executed completely independent of any real world organization, by people who met one another in SL and just decided that creating and operating such a museum would be a worthwhile, fun project" (Kemp and Livingstone 2). The museum, here, is testament to the levels of expertise, work, and quality that are possible in affinity spaces, and serves, as well, to perpetuate the innovation and excitement that served as environment to its creation:

> *We believe 3D virtual worlds present opportunities to forge new methods of putting learning methods in the hands of people who use them. Every educator I've shown our museum to has told me about his or her excitement engendered by the ideas they have after seeing what we've done with interactivity, full-sized models in the round, and creative presentations. From the model of Canada's robotic arm used on Space Shuttle and the International Space Station, which visitors can try out themselves, to the incredible tour of the solar system with platforms at each scale-modeled planet, the immersive effect of Second Life opens up broad vistas of imagination and visualization impossible or incredibly expensive to accomplish in the mundane world. (2)*

Passion-driven interaction in such a project in such a world, Kemp and Livingstone argue, invokes a variety of skills, pulling and developing "strong scripting skills, visual design skills, and 3-D modelling skills," and, of course, "expertise in subject contents." This convergence of high-level,

interest driven skills serves well to illustrate the potential of virtual constructible environments. However, Kemp and Livingstone end with meditations on some of the same problems with accessibility that De Lucia et. al do: in their study, they reveal that many computers used by community members participating in the study did not have computers powerful enough to run the Second Life game smoothly. Though the computers were not old, they were designed as work computers, "only intended for office applications and had integrated graphics with small video memory" (6). De Lucia et. al were able to secure a research grant to fund graphics card updates for the computers from the Academic Technology unit of Ohio University, (6) but this remains a considerable problem with accessibility. Grants are not possible for every teacher or professor seeking to invoke this passionate affinity space pedagogy in their classrooms across the world which are situated in powerfully varied levels of socioeconomic status. What's more, students too may have limited access to computers with graphics cards. Indeed, many of De Lucia et. al's observations seem to neglect the position of the students who would be asked to engage in this world. They meditate on the high levels of skills brought together in the space, but forward that such skills would be achieved by a "multi-discipline team with a diverse skill set" (6) rather than a classroom. They meditate on the opportunities made possible with the programming language that adds functionality to the objects within the virtual world, the "Linden Scripting Language" (13), but focus only on what professors have done with that language and seem to miss the value of having *students* work with and learn the language.

Minecraft, too, is a 3D, virtual, constructible world that has garnered great pedagogical energy and interest. The world of Minecraft is designed as a living ecology constructed out of blocks (Figure 3). Players entering this world in "survival" mode must dig, chop, and mine the

world around them to build tools of increasing complexity in order to craft armor, more effective

tools, weapons, and buildings to keep at bay the monsters that swarm in at night. In "creative"

mode, there are no monsters, and players are free to build towering structures without limitation.

Fig. 4. "Minecraft." Screenshot by SauerC, Pixaby.com. CC0 Creative Commons License.

In "Minecraft as Web 2.0," Greg Lastowka offers that Minecraft, as a "sandbox game," an open-

world game that situates players in an environment in which they are free to explore and interact

with in multiple directions without being controlled to move or act in a single direction and/or

along a single plot, naturally draws players into deeper and deeper engagement with the world

and prompts work of increasing intensity and complexity:

> *Minecraft requires players to be creative, even if that creativity is limited*
>
> *to designing a crude shelter or tunneling the layout of a mine. But most*
>
> *players don't stop there. Digging a mineshaft leads almost inevitably to*
>
> *the creation of large underground caverns and mountainside fortresses.*

> *Building a simple house leads to the construction of another story for that*
>
> *house, and then a tower, then villages, then monumental sculptures, and*
>
> *finally feats of complex engineering, such as dams, bridges, and roller*
>
> *coasters. (Lastowka 9)*

What fuels this greater and greater engagement is the fact that Minecraft is not simply a "blank canvas:" the limitations it places on the player, which stem from the mechanics of the world itself, actual serve to inspire greater engagement and creativity. All the work that is done inside the Minecraft world is done by engaging with the world's connected ecology: trees have to be cut down, flowers grow, and animals are fed as the players pursue their vision to remake the world to their own visions, following the rules and nature of the world's material. All this said, another important part of Minecraft is that its social nature prompts Affinity-Space engagement which breaks out of the world and engages with the Minecraft platform from a meta-level:

> *The external world too: In addition to YouTube videos, Minecraft players*
>
> *have filled the Web with a wealth of wikis, forum posts, and other sites*
>
> *that offer specialist advice and commentary about Minecraft. Some sites*
>
> *offer tutorials for Minecraft building or mining while others explain how*
>
> *to rig basic electrical circuits in the game. (9)*

Indeed, In *Connected Gaming,* Kafai et. al offer that in Minecraft's multiplayer mode, "players from around the globe to work with or against each other as they devised their own microworlds, establishing in the process, quite literally, Gee's notion of affinity spaces" (Kafai et al. 58–59).

Minecraft has exploded with fan-driven creativity. It hosts sculped block-worlds of incredible artistic complexity and serves as site for prolific, fan-driven communities focused on skins, mods, and programs for this world. While activity and research in Second Life has dwindled in the last several years, studies in Minecraft still remain strong, and by all accounts, are only picking up steam. Minecraft holds a couple advantages over Second Life: with its charming, "block aesthetic," its graphics take on a layer of abstraction that prevent it from showing its age as readily as Second Life, which has 3D graphics that are modelled to be "realistic," and thus prone to slippage across the uncanny valley and will more readily pale in comparison to newer "realistic" games. Second, its virtual ecology builds a stronger connection to working within the gameful mechanics of the virtual world, while Second Life offers more of an unguided, blank canvas. Third, by limiting the interaction and building in the world to that which can be carved out of the materials of the world themselves, Minecraft is much less prey to the confusing sprawls of imported buildings, models, and animations that constitutes Second Life civilization. A tour through Second Life may reveal ads and posters clamoring to sell assets, property, and animations. There is as well a bustling sex community in Second Life, with models sculped in bondage gear offering to sell sexual animations in return for real money, which, it goes without saying, opens a new array of potential problems and issues to consider for a teacher and a classroom. These problems can be mitigated with private servers and islands, but these are just not problems that Minecraft has. In all these cases, it is clear that sometimes less can be more: sometimes limitations prompt greater creativity and direction. Minecraft, however, suffers from a few of the same limitations that Second Life does in that it is a ludic, 3D world. Not all computers can run 3D worlds well, and graphical processors are expensive. If schools in higher socioecomic areas are better able to equip students with the effective pedagogies of the use of this platform

than schools in lower socioeconomic areas, the platform furthers dangerous digital and educational divides. Secondly, Minecraft also has trouble smoothly integrating text into its world. Minecraft can also have signs that let players read simple blocks of text, but the world in general is meant to be much more ludic than it is narrative.

But narrative is important. And powerful. And when text is given the space it needs to breathe, to weave and play through the interactive world, it can do great things with story, narrative, argument, and research, pulling the best features of both playful, gameful spaces and traditional scholarship and literariness. I make my turn here into an argument for looking back to text-based virtual worlds and to reconsider the power of text to do the kinds of things we've explored so far in this chapter with modern, graphical games. To make this turn, I move across a spectrum of gaming and literariness, starting with Astrid Ensslin's study of games through a lens of literature analysis.

GAMES THAT CAN BE READ AS TEXTS

In *Literary Gaming*, Ensslin engages in deep analysis of games in order to place different games across a spectrum that considers the complex interplays that happen in virtual environments between play, narrative, and literature (12). Play, here, is given a theoretical grounding as Ensslin moves through the concept of "playfulness" as a guiding principle of 21st century thought and practice; Ensslin combines Bakhtin's concept of the carnivalesque, Lévy-Strauss's concept of bricolage, and Derrida's concept of deconstruction to define play as what happens in spaces where rules and structures can be broken up, units, theme and meaning can be moved about, subverted, rebuilt, and pressed against each other or overlapped to come to (and to continue to play with) new units of meaning, decentered and without norm (26). Such a

lens can be (and has been) used in classic works and with static text; one can "play" in print literature in the sense that authors can play with possibilities, shape and subvert reader expectations, and readers can in turn approach texts playfully, working with and reshaping text and/or engaging with other texts across a connected network of ideas. Jorge Luis Borges, for instance, offers that all of literature can be engaged with as a game that both readers and authors can play: "Literature is a game with tacit conventions; to violate them partially or totally is one of the many joys (one of the many obligations) of the game, whose limits are unknown" (qtd. in 28). Such play, Ensslin states, is "ludic," but the play invited by game environments requires a different set of terms. Ensslin offers a framework called "ludostylistics," which moves across the concepts of "ludology, ludonarratology, ludosemiotics, and mediality" to place and analyze games across a spectrum that considers "Hyper Attention" on one end and deep, thoughtful, literariness which evokes "Deep Attention" on the other (44). On the former end of the spectrum, Ensslin explores the extent to which a game invokes a state of playfulness, a multimodal, multitasking, and immersive, fast-paced and challenging thought called "Hyper Attention" (39), which channels Mihialy Czikmihialy's concept of 'flow,' in which a player is engaged in a full-body action which rides just in the sweet-spot of action that is both successful and just challenging enough (Csikszentmihalyi 4). On the latter end of the spectrum, Ensslin defines "ludic digital literature," which engage in the traditional moves seen in classical conceptions of literature, in "highly regulated, rule-bound, and structural" (41) conventions and/or which engage in "artistic, critical, and/or self-reflexive agenda intended to make players reflect on their medial, textual, interactive, material (or otherwise) nature" (35). Across this "L-L spectrum," with "ludic" on one side and "literary" on the other, Ensslin uses a toolkit which considers a game's ludology, which is the gameplay, rules, and architecture of the game, ludonarratology, which considers the game's

174

internal and external (possible) narratives, ludosemiotics, which consider the game's interface, graphics, use of text, form, and structure, and use of procedural rhetoric, multimodality, which considers the game's use of semiotic methods (image, text, sound, etc.) at play with each other within the game, and mediality, which considers the game's coding, inputs, interactivity, and platform (53-54). With this toolkit, she analyzes hypertextual poems (61), interactive fictions (105), metagames, and "slow games" (128), showing gaming analyses rich with literary criticism.

I am hesitant to fully embrace any of Ensslin's frameworks and schemas as the only ways by which games and game analyses can be parsed, and I note that with several games, Ensslin herself has trouble placing them across her "L-L" spectrum. Though it is true that games certainly carry themselves with different weights and manage different levels of pacing, complexity, and literary depth, many games subvert placement and categorization. The Bioshock series, for example, plays on the surface as a fast-paced game of twitch reflexes that would place it firmly on the "ludic" side of Ensslin's spectrum, but at the same time, as backdrop, the game glances and plays across themes of mythology, the hubris of mankind, quantum science, and colonial racism. The game evokes glossary, twitch-based, combat-oriented "Hyper Attention" at some places and with some kinds of players, and "Deep Attention" and interaction with its heavy themes at other places and with other kinds of players, resisting entirely any kind of placement along Ensslin's spectrum. I want to press further here and offer that all games, even the most apparently shallow and ludic Triple-A titles, can be deeply and critically read, can function as literary texts. Ensslin's spectrum runs the risk of allowing an academic apparatus to determine which games are "acceptable" as scholarly or literate and which games are not. Such gatekeeping is built on assumptions that play and gamefulness work against by nature. All this said, Ensslin's

work is testament that games can do deep, rich, rhetorical, critical things, and that games can be critically read for scholarly and literary analysis. What's more, Ensslin's "L-L Spectrum" and ludostylistic toolkit are wonderful tools for any scholar or student to produce high level critical and academic analyses: games can be read as texts, and the doing so will further enrich our academic enterprise.

TEXT THAT CAN BE PLAYED AS GAMES

In exploring the other side of this coin and considering not games as text(s) but text(s) as games, we must look back to the 1990s, in which early networking capabilities provoked digital genres that promised to usher in new ways of thinking about text in what Ruth Page and Bronwen Thomas call "the radical claims for a narrative revolution in light of hypertext, gaming, muds, and moos" (Page and Thomas 12). Networked digital text which could move across the screen, form connections to other texts and areas, and become dis/re/located set the stage for experiments with online text-experiences and digital fiction with moving lexias, prompting a changing, flexible, instantaneous genre of textuality which speaks to what Walter Ong in 1980 called a "secondary orality" (qtd. in Page and Thomas 15).

Inspired by the growing scholarship in this new form of textuality, George Landow draws from literary theory to explore the concept of *Hypertext* as a constantly opening, connecting, rhizomatic form of text. Hyperlinks in text, he explains, interrupt the chronology of the reading experience. A reader can stop in the middle of a text, follow a link, and engage in a new text: the reader will read this new text from the context of the previous text, making internal connections, having an experience that is different from the experience of reading either text in isolation. Through this process, conventional ideas of "beginning" and "end" are subverted, delocalized. A

hypertextual reading has no set direction. When we add to this the dimension that readers can add to Hypertext systems by linking in their own webpages, participating in Wiki edits, and adding additional information in comments, a hypertextual reading becomes even further decentralized. Seen in this way, Landow offers that hypertext is the realization of what Roland Barthes is talking about in S/Z in his search for the an "ideal textuality:"

> *"In this ideal text," says Barthes, "the networks [reseaux] are many and interact, without any one of them being able to surpass the rest; this text is a galaxy of signifiers, not a structure of signifieds; it has no beginning; it is reversible; we gain access to it by several entrances, none of which can be authoritatively declared to be the main one; the codes it mobilizes extend as far as the eye can reach, they are indeterminable ... ; the systems of meaning can take over this absolutely plural text, but their number is never closed, based as it is on the infinity of language." (qtd. in Landow 2)*

As the experience of reading a hypertextual document can change from link to link as a reader chooses paths, the text has no beginning nor ending, and each forged connection speaks to new meanings as seemingly disparate blocks, pages, or stanzas of information are juxtaposed against each other, communicating with and gaining meaning from the other in a "dialogic interrelationship" (122). This concept speaks as well to Derrida's vision in *Gla*s; a decentered, freer, richer form of text; unbound by hierarchical conventions of form, reflecting and responding

to the personal experiences of the reader, offers new structures which resist traditional configurations of hierarchy that are rooted in conceptions of authorship:

> *This kind of democratization not only reduces the hierarchical separation between the so-called main text and the annotation, which now exist as independent texts, reading units, or lexias, but it also blurs the boundaries of individual texts. In so doing, electronic linking reconfigures our experience of both author and authorial property, and this reconception of these ideas promises to affect our conceptions of both the authors (and authority) of texts we study and of ourselves as authors. (45)*

Landow believes that hypertext realizes the Rhizome of Deleuze and Guattari's *One Thousand Plateaus*: The rhizome, always in the middle, has no beginning or end, and grows in all directions through pathways of information; it's irreducible either to the one nor the multiple, in contrast to hierarchical and centered forms of communication with pre-established, predictable, and controllable narratives or paths, just like hypertextual readings:

> *As we explore hypertext in the following pages, we shall repeatedly encounter the very qualities and characteristics Deleuze and Guattari here specify: like the rhizome, hypertext, which has "has multiple entryways and exits," embodies something closer to anarchy than to hierarchy, and it "connects any point to any other point," often joining fundamentally different kinds of information and often violating what we*

understand to be both discrete print texts and discrete genres and

modes. (60)

A hypertexual reading is never static, is able to change, grow, and connect, offering new experiences as it blurs the traditional boundaries between reader(s) and writer(s), and situates information as co-existant rather than subordinate to other pieces of information: in hypertext, footnotes and marginalia, relegated to background information in a print text, stand as possible branching pathways in a hypertext, with just as much potential and meaning as the other paths a reader may choose to follow. Under this style of linked reading, Landow describes a "textual universe" with a "new kind of hierarchy," in which the power of the text originates in a delocalized center that is unique to each reader's experience of the text(s), "But because in hypertext that center is always a transient, decenterable virtual center—one created, in other words, only by one's act of reading that particular text—it never tyrannizes other aspects of the network in the way a printed text does" (120). To serve as example, Landow cites Michael Joyce, the hypertext author of *Afternoon*. In Afternoon, Michael Joyce experiments with this rhizomatic form of reading and hypertextual writing. The story he writes does not start at a traditional beginning, but instead drops readers off in the middle of a scene that will at first not be entirely understood. But by clicking on hyperlinked names and words, the readers slowly learn about the characters and fill in events along the timeline of these characters' histories. No reader will have the exact same experience or follow the same paths as they work through the story, and the story doesn't have an end: the links will continue, offering new avenues of exploration and folding back on themselves, giving previous passages deeper meaning; the story is only over when the reader is done. Indeed, Landow points out that Joyce is "suspicious of closure," and thus only ends when

the reader decides that it ends: "When the story no longer progresses, or when it cycles, or when you tire of the paths, the experience of reading it ends" (qtd. in Landow 229). Even so, Joyce warns, what may at first be seen as repeating information or a looped path may change upon return visits, evoking a new path and reader experience. In doing so, Joyce's text takes on a playful, ethereal, even dreamlike form: "A word which doesn't yield the first time you read a section may take you elsewhere if you choose it when you encounter the section again; and what sometimes seems a loop, like memory, heads off in another direction" (qtd. in Landow 229).

Espen Aarseth, however, cautions us against getting too excited about reading hypertext as that Bolter calls a "vindication of postmodern literary theory" (qtd. In Aarseth 83). Nor is hypertext implicitly emancipatory and freeing to a reader. In fact, in some ways it is the opposite: while a reader is free to jump at will about a book, flipping from page to page, hypertexts can elect to hide parts of the text from the reader until the right conditions are met: "The reader's freedom from linear sequence, which is often held up as the political and cognitive strength of hypertext, is a promise easily retracted and wholly dependent on the hypertext system in question" (77). What's more, to claim that "hypertext is fulfilling 'postmodern theory'" is an "attempt to colonize several rather different critical fields. . . on the imperialist pretext that they did not really have [empirical objects] until now" (83). Poststructural notions of linking rhizomatically between and amongst texts have preceded Hypertext in print-based modes and will similarly continue alongside and beyond Hypertext: "What hypertext and poststructuralism might have in common is a much more general aspect of textuality and writing: the need to refer to, repeat, and represent other texts; but this aspect is much older and more well established than both hypertext technology and deconstructive theory" (Aarseth 84). Aarseth offers, instead,

that hypertext does not reconfigure narrativity but "offers an alternative to it," is a technology that allows for *additional* means of reading and writing, which Aarseth describes as the concept of ergodics (85). Aarseth's "ergodic text" is text that requires effort on the part of the reader to proceed through. In a book the reader moves forward through the text with minimal effort; the reader has to simply move her eyes or turn the page. In an ergodic text, the reader has to work, to explore, to find the right links or type the right words to proceed through the text. This, Aarseth explains, crystalizes two different planes by which readers navigate, and introduces a third:

> *In an exploratory ergodic text such as hypertext, the progression plane is divorced from the event plane, since the reader must explore actively and nontrivially to make sense of the event plane. In adventure games, the relation between events and progression is defined by a third plane of discourse: a negotiation plane, where the intriguee confronts the intrigue to achieve a desirable unfolding of events.*

What we have here are layered possibilities to the reading and writing paradigm, allowing for texts that do more than traditional works, allowing for more rhetorical possibilities and considerations for both author and reader turned player. Aarseth's *Cybertext* framework charts and explores these new possibilities, which can include dynamics, determinability, transiency, perspective, access, linking, and user functions (63), all of which can come together in varying combinations that produce different interactive texts. All these possibilities, I want to argue, can be of use in the writing classroom: while the idea of hypertext as a revolution is contestable, it is better used as a means of possibilities, it is a tool in the writing space, and it allows for interesting writing genres.

In "Hypertext and Creative Writing," Joyce joins Bolter and David in an argument for hypertext as "a medium for a new kind of flexible, interactive fiction." Continuing Landow's analysis of hypertext as "a natural extension" of subversive experimental breakdowns "of traditions of narrative prose" (5), Bolter, David, and Joyce describe a digital text which is fluid, built in "narrative units" and comprising a computerized sense of "space" which is filled with a dynamic "pattern of episodes and links that define a kaleidoscope of possible structures" (7). What they are talking about here is using hypertext to create gamespaces, or what Meifert-Menhard calls "Future Narratives." A Future Narrative (FN) is here described as a "custom-made text" (Meifert-Menhard 1) which emerges from the personal choice of the reader rather than the command of the author, and carries the following features:

Structural Variation: Using dislocated stanzas, the structure of these narratives can change depending on the path a reader takes through the text. These choices can affect not only the way the story is presented and how its built, but the meanings the story accrues as it develops in relationship to the shifting order of digital stanzas. In addition, choices can change the language of the stanzas themselves, allowing through new experiences in re-reading.

Multiplicity: FNs feature a multiplicity of choices, composed of links and nodes that allow for multiple possibilities as a player/reader makes her way through the text(s). With the use of the term 'node' here, we might recall Metcalfe's and Moore's law as described in Chapter Three, and realize that again the term speaks to exponential potential as nodes and links form meaning through dynamic (possible) connections. As Meifert-Menhard explains:

> *The initial definition of 'node' already generates one of the central*
>
> *questions within the conceptualization of this idea with respect to*

narrative, namely which shape or ' gestalt ' such a node can take. This question applies with particular force to textual FNs, as the texts considered in the present study feature a highly diverse range of nodes, enabling very different forms of choice mechanisms . . . spontaneously reacting to a set of given parameters. How such nodes concretely manifest themselves in narrative texts is dependent both on the materiality and the mediality of the specific narrative artefact. In a general sense, the idea of the node can be conceptually extended to include all situations which contain the possibility of structural bifurcation, a framing which liberates the notion from the limited (and limiting) spatiality implied by the terms 'node' or, even more strongly, 'nodal point'. (Bolter and Joyce 46)

Choice: FNs ask players/readers to make choices, and these choices change the outcomes, pathways, experience, and even material of the text.

Emergence: Through these choices which result in a changed narrative, new concepts and experiences are invited to emerge from within the results of the choices, the interplay between possibilities, and the juxtaposition of digital stanzas which are dynamically placed or separated in relation to (or from) each other. In this sense, that which comes out of engaging with the text is procedural, and in a sense only can be viewed in entirety in retrospect:

FNs thus actively stage the process of a series of events evolving and developing into different directions (according to the decisions made at

individual nodes). This process is, by definition, neither determined nor

closed from its outset, as the multiple continuations in FNs work against,

indeed often resist, sealed and rigid structures or the establishment of

definitive ending points. Being procedural systems, FNs present

storytelling as an on-going and versatile development that only becomes

a 'product' in retrospect – after one specific path of the narrative has

been read, played, or watched (and this 'product', will, of course, only be

one of at least two possibilities the text offers). (14)

Taken together, Future Narratives, which are not (necessarily) about the future but which structurally engage with and *stage* the future as a space of possibilities (2), are seen as an evolution of a new type of storytelling, and herald a genre of games than blur the lines between textuality and play. These gameful narratives turn text into a *space* which can be dynamically explored. In this act of reading and traversing the space, the reader/player takes on an authorial role in the unfolding narrative. The reader, along with the writer, engages in cognitive world creation as the two collaborate through the unfolding text:

The player not only traverses this architecture and rule system of the

narrative, but also performs a navigation through the storyworld's

topography, which often includes intricate caves, labyrinthine passages,

and multi-level buildings. Since this topography is not represented

visually, the player will inevitably have to (re-) construct it in her mind –

IF generates cognitive world-creation. (Meifert-Menhard 138)

In this space, we find an intersection of textuality, reading, and decision making, we blend genres between *text* and *game*, and find readers and writers immersed in the qualities of both of these genres. The reader, when given the ability to make choices that change the results of the text and the world the text is situated in, is given *agency*, and this, Meifert-Menhard argues, is the key feature that distinguishes a future narrative and connects it with discourses of gaming and gameplay:

> *Indeed, FNs are explicitly based on the active involvement of an agent in the storyworld's future (be it a reader/player or a character within the tale); a crucial differentiation between past and FNs can thus be located in their ability (or willingness) to proffer a sense of individual agency. . . Agency is an experience connected to gameplay, gameplay is connected to the experience of power, and power is not only equivalent to optionality, but, more importantly, to consequentiality, to attributing a detectable significance to individual player moves. (29-31)*

When the reader feels that the choices she makes in the narrative have actual impact on the narrative and the world, the reader is engaged in the text gamefully, and the reading of the text becomes immersive and active. (Indeed, Landow argues that, when given the ability to make choices, "it is impossible to be a passive reader of hypertext" (qtd. in Landow 151). The reader/player's action becomes not that of passively taking in information but collaborating with the text/world; the act of reading turns to acts of *performative simulation* (Meifert-Menhard 50). It is here that texts take on the full body modes of engagement we've explored in both networked

affinity spaces and in studies of engaged gaming culture. An ideal FN, then, allows for text to weave both complex and scholarly meaning while fully engaging and empowering the reader/player. Meifert-Menhard's analysis of the Interactive Fiction piece "Spider and Web" illustrates this. The analysis reveals the FN's high level writing combined with gameful engagement:

> *Andrew Plotkin's interactive fiction Spider and Web has been hailed as*
>
> *one of the most successful and intricate recent variants of the genre, and*
>
> *was awarded the XYZZY Award for Best Game in 1998. A conventional*
>
> *spy story on the surface, Spider and Web reveals itself as a highly self-*
>
> *conscious examination of the story-telling possibilities of interactive*
>
> *fiction, working on and with different narrative levels, voices, and*
>
> *including metalepsis and unreliable narration in its storytelling structure.*
>
> *As Plotkin himself describes his work in the "about" section of the game,*
>
> *"[i]t is a game about deception, incomplete knowledge, and the ways*
>
> *that stories in other people's heads can be the best lies. It is also about*
>
> *the role of the narrator […] in interactive fiction." (213)*

Can we involve our students in similar levels of scholastic intensity combined with personal and empowering engagement? Certainly. Meifert-Menhard offers that "FNs can be read critically, taking on every schema of analysis that might be applied to traditional literature, and more; new moves lead to new functions of rhetorical analysis, like nodal power" (175), offering students a wide array of critical and rhetorical venues with which to engage with these texts both as writers

and critical readers/players. Meifert-Menhard also points out that FNs are accessible and are found all over modern media:

> *The variety of media included in this approach – from the hard-copy book to the computer and mobile platforms such as the iPhone or iPad – testifies to the fact that textual FNs are literally ubiquitous within the narrative cosmos, testing the limits of bound pages in print novels, gaining full force in the electronic realm, and expanding into unprecedented forms in multiuser digitality, with thousands of players creating ever new textual artefacts on- and offline. (5)*

David Ciccoricco, too, writes of a hypertextual paradigm as ushering a genre of writing that becomes reflexive and dynamic, a genre that moves "away from representation and toward simulation, away from the dynamics of reading and interpretation and toward the dynamics of interaction and play" (Ciccoricco 17), presenting literature with new frameworks and considerations. Ciccoricco's concept of a Network Narrative extends Hypertext theory in terms of form: while traditional hypertext theory is read along either axial or arborescent forms, the former representing one main narrative with short digressions that return back to the main narrative and the latter representing a narrative tree with branches that extend out in varying directions, network fictions emerge from the combinations and recombinations of textual nodes:

> *A network narrative, then, differs not only in its nonhierarchical organization but also in that its narrative emerges gradually through a recombination of elements. . .The parts, or nodes, of network narratives*

are self-contained semantic entities—and each screenful of narrative

material must be combined and recombined in order for a higher level of

coherence to emerge. Network fictions are emergent and recombinatory,

and they exploit digital technology toward these ends. (19-20)

This is a way of thinking about text that is gameful and dynamic: it demands that textual elements move freely, that they can connect and reconnect, and that new experiences can emerge in the interplay between these textual elements and the player. These allow for gameful, exploratory possibilities between the author-turned-worldbuilder and the reader-turned-player. By engaging with FNs, cybertexts, hypertexts, and network fictions in the classroom, we engage students both as reader/players and writers with critical, intellectual, and gameful engagement in texts that resonate with and provide skills for interactive and mobile literacies that are found all over society. Ciccoricco notes, however, that these narratives aren't replacing traditional narrative. Innovation in this sense does not overwrite, it merely adds to, bringing new possibilities: "Technological innovation does not overwrite—does not exclusively determine—any and all change in the flux of media ecology. Rather, technology and ideology exert a reciprocal influence, each continually reinventing the other" (37). Thinking about and playing with these narrative possibilities allows for new options for the reader and writer, which can be set in dialogue with traditional models of writing. Markku Eskelinen makes a similar point. Echoing Aarseth's cautions against describing hypertext as a revolutionary paradigm, Eskelinen offers that these genres, in offering rhetorical moves not possible across the paradigms of print-based literacy, can cast new light:

My aim is not to hint at revolutionizing literary studies but to set selected paradigms of hegemonic literary theory in dialogue with digital and ergodic anomalies, much to their own benefit, and most of all to the benefit of the enterprise of literary theory that has for quite some time now (after various "post" movements and cultural studies) existed without fresh challenges, new openings or remarkable advances. (Eskelinen 7)

By experimenting with the rhetorical possibilities of these kinds of texts, I argue that students will develop as writers as they work across genres and create in multiple ways: the gameful, constructive writing of ergodic texts, hypertexts, text generators, and MOOs, will be set in dialogue with traditional genres of writing. In all of it, students will be building, thinking about possibilities, experimenting with ways to explore, explain, and persuade, students will be *writing*.

THE ARGUMENT FOR TEXTUAL WORLDBUILDING IN THE CLASSROOM

In drawing a pedagogy for incorporating creative textual worldbuilding in the classroom, I make an argument that may be met with opposition from two very different sides: I stand here in the middle of a spectrum which spans from, on one side, the expectations of traditional pedagogy who expect to see foundational writing practices to get students to engage with traditional text in critical, grammatical, and traditionally scholastic ways, and on the other hand, I face skepticism from those who would push for full 3d worlds and interaction with games, who argue that the calls for textuality that grew in the '90s are outmoded, that textual worlds won't engage a generation that has been raised on flashy multimodality and humming graphics cards.

To the former crowd, I hope that my literature reviews here have shown that engagement with Future Narratives and gameful textuality can evoke development along multiple forms of scholarly thinking and literariness, both classical/traditional and opening up new realms of critical and rhetorical consideration. To the latter crowd, I aim to make the argument that play in virtual text environments, though it may not seem as flashy or as captivating at first blush, can be even *more* engaging than 3D worlds, and in addition, carries with it a host of advantages and mitigations of the weaknesses and drawbacks to 3D virtual world pedagogy. I enter this argument by restating this: Sometimes less is more, and sometimes the limitations of a system are exactly what is needed to guide engagement to greater levels.

First, text allows for complex narrative, argumentative, and traditionally scholarly moves much more felicitously than in 3D worlds. By playing with text, students can engage in the playful moves of choice and agency while continuing to gain practice and exposure to traditional forms of writing, from the word level, to sentence-level construction, to considering transitions, structure, and form, to incorporating research and citation, to considering wider level forms of literary and narrative analysis that have been birthed around genres of static text. Although the idea of creative, playful, constructive pedagogy strikes as new and counter-traditional, foundational aspects of writing are evoked in textual worldspaces, both passively in terms of immersion in textual environments, and actively with direct consideration of classically textual forms of analysis. An argument in a virtual, 3D world with limited textuality is certainly possible, but will have to be abstracted, performative. An argument in a textual world can be made similarly, or can be more traditionally laid out, structured, and cited; it is given the freedom to move up and down levels of abstraction.

Second, text-based worldbuilding and play *is* engaging. It may not seem as attractive as the videogame boxes that line the walls of a Gamespot and will require some preloading, scaffolding, and, yes, maybe even arm-twisting to get students to give it a try, but I'll start by saying this: making a virtual world or game sure is more interesting than writing a traditional paper, and I would argue that most students would agree. When set against the conventions of writing in the current-traditional school of pedagogy, the bar of engagement is set pretty low. Once students are brought into the process, they will find themselves involved in immersive activities as both readers and writers: as reader/players, they will find texts that resist passive absorption, that ask for input, that allow agency, that change according to the way they're played and explored. As writers, they find themselves considering multiple directions and dimensions, allowing space for exploration and creativity as they give life to worlds.

Third, I would extend my last point and argue that textworlds, when embraced, can be even *more* engaging than graphical worlds. In making this argument, I point to anyone who has argued that a movie adaptation falls far below the original book in terms of depth. It is said that a picture is worth a thousand words, but I could counter that and say a well-crafted sentence can evoke a thousand pictures, achieving details in the mind's eye that couldn't be realized by even a room full of artists and rendering machines. As Aaron Reed writes in his defense of text-based Interactive Fiction:

> *Dickens, Lovecraft, and Tolkien all got along just fine with "only text." I'm*
>
> *not sure that, were any of them alive in our century, they would decide*
>
> *vertex shaders, voice acting, and a good physics engine were necessary*
>
> *to tell their stories. One can almost hear them suggesting such things*

might in fact be distractions. The first step to understanding interactive

fiction is to embrace its text-only nature as a feature, not a bug-an

advantage, not a limitation. (Reed xxii)

Fourth, textual worlds, I argue, stand as static against the flow of time. In the breakneck speed of computer innovations, it does not take very long for any graphical computer program to start to show its age. Graphics from as recently as ten years ago, which seemed unimaginably realistic then, look simplistic and unrealistic now. As I mentioned when exploring the drawbacks of Second Life, the "realistic" form of 3D rendering is the quickest to fall out of fashion and slide across the Uncanny Valley, denting its claims to realistic engagement. Minecraft, I argued, has been able to mitigate this march towards antiquity by abstracting itself: its cartoony, blocky version of reality is able to maintain an image that is more resistant to the flows of developing computer imagery and expectation. But I would take this further with text: text, already at its most primordial form, stands apart from the march of technology and graphics. Text predates it, supplements it, and will surpass any singular graphical paradigm. Again drawing from Reed:

Text predates the computer, electricity, and the printing press: it is in

many ways the foundation of civilization. Text can outlast the technology

used to inscribe, print, or transmit it; the great texts of the past may

outlive the printed book itself. And adventure is a driving force of the

human condition. The need to discover, to explore, to experience- without

necessarily shooting anything along the way- is stronger than ever in an

age where every inch of our planet has been mapped, claimed, and

conquered. Indeed, such a world needs adventure even more. Graphics

cards come and go, but text endures. And adventure is forever. (xxi)

Fifth, an argument for using text is an argument for accessibility. Where studies in both Second Life and Minecraft meditated on the need for computers with graphics cards and computing power, text remains lightweight and can be run on any system. The entire world that constitutes the LamdaMOO core, with thousands of rooms, passages, and pages worth of writing, comes out to twenty or thirty megabytes. As such, entire text-based worlds and experiences can be slung about on disks, delivered in the blink of an eye over the internet, and run without need for great processing power. Text based worlds, which require only typing to write and typing or clicking to read, can also be mediated across forms, allowing this pedagogy to be accessed by those with limited vision, hearing, or mobility. They eschew entirely the challenges one may face in having to control a live unit in a 3D world. Reed adds, "Blind fans of IF are a large and enthusiastic component of the online community. Gamers with disabilities who are unable to keep up with reflex-based shooters are delighted to immerse themselves in the slower-paced mental challenge of interactive fiction" (Plotkin xxiii). What's more, creation in 3D, graphical worlds takes great amounts of time, resources, technical ability, and power. Triple-A games require teams of artists and programmers working in concert, with thousand to million dollar budgets, over years. Even single-authored, simple indie games can take months to design and execute. These are not resources that an average student has access to. A work of interactive fiction or a FN can be achieved quickly, singly authored, and without budget. Kitty Horrorshow writes this on the homepage for Twine, a text-based interactive-fiction platform: "The simple beauty of Twine is this: if you can type words and occasionally put brackets around some of those

words, you can make a Twine game" (*Twine / An Open-Source Tool for Telling Interactive,*

Nonlinear Stories). To take accessibility even further, we can separate the text from the computers

which house it, and engage in prewriting, scripting, drafting, storyboarding, chopping and

otherwise engaging with text in these creative, constructive, and engaging ways with only a pen

and paper.

And finally, work in text-based virtual worlds can lead to development along the path to

engagement with the visually complex modes of modern game and 3D world creation. By learning

the structures of worldbuilding, interactive narrative, of crafting choices, employing procedural

rhetoric, and storyboarding out complex, reflexive worlds, students engage in the cerebral work

involved in great game design without getting turned off by its steep learning curve and demand

for resources. Interactive Fiction games and FNs can serve as drafts which will allow other work

to be built on top of it. Reed agrees: "Perhaps counter-intuitively, IF can be a useful tool for

designers of multimedia games as well. The speed with which game mechanics and plot events

can be mocked up and iteratively improved makes IF a wonderful medium for prototyping any

sort of interactive story" (xxiii).

Textworlds are accessible, engaging, and scaffold both traditional literariness, game-

based pedagogies of immersion, and 21st century digital literacies. But how might the platform

scaffold this kind of work? In Chapter Five I will explore how I incorporate tools such as Twine to

enable students to create FNs inside the class as part of a "microworld pedagogy," and look back

to studies in '90s MOOs to build a prototype for my own virtual textworld.

CHAPTER FIVE: VIRTUAL TEXTUALITY

A LEARNING STORY: PART TWO

A couple years after my rise and fall in Diversity University, I was invited to a new MOO. Amy Bruckman's PhD Dissertation involved the construction of a MOO that was focused on creating a space for children to hang out, mess around, and geek out on their own, affectionately titled "MOOSE Crossing." Bruckman built this space with an eye for giving children the tools needed to take ownership of the world, by focusing both on accessibility and community. The former was achieved with a deep revamping of the code structure, identifying redundant operations and unnecessary steps in navigating and coding the world, and simplifying the operation to shorthand, natural language commands. 'Announce' would replace '@this_location_announce_all.' 'OOPS! I Didn't understand that' would replace strings of jargon that threw about words like 'TRACEBACK.' The space was designed to let kids of all ages engage with the virtual world.

And I did. With my background in a world that was much less user-friendly, I quickly learned and re-learned these new simplified operations and set to work recreating what I had started at DU. I recreated my winged dog, my robot butler, my cloud home. And after I got back to where I had left off, I started my own innovations and experiments. No longer content to copy the world around me, I wanted to see what could be done, what boundaries could be pressed, what new directions were possible. Over the months my cloud became home to floating snippets of code, half-finished experiments, bubbling potions. A flickering teleporter in the back would

take one down to a hidden laboratory. My room also became populated with the artifacts of being in a connected, living world. A trophy case housed my first programming reward, which glittered gold. A cabinet held a bottle I had spun in which I had my first virtual-kiss.

In MOOSE Crossing I built for and alongside an audience, this time made up of kids who were just like me. Where I was barely tolerated in Diversity University, I was celebrated here, and every day when I logged in I would get visitors who wanted to see what I was doing and how I was doing it, who wanted to share their own experiments and identities.

This engagement bled out to the "real" world, as well. With every act of creation, I was involved in a making process that synthesized writing, communication, and computer literacy. My interests outside of this virtual environment coincided with the growth that was happening within; I became focused on building and making. I started developing a love for writing. My typing started to build breakneck gains in speed. And my love of working within a community continued. I remember sitting down with my friend Tom and showing him what could be done in the MOOSE Crossing environment. Immediately engaged, he guided me as I created a chair of his own design.

"Here is where we can describe it. Dictate it to me, what does it look like?" I prompted.

"Okay, I want it to look great. I want anyone who walks by to be impressed. Describe it as a wooden chair that's beautifully sculpted in polished wood that's etched with the swirls and curls reminiscent of the Baroque era."

"What's the Baroque era?" I asked, typing away.

"It's a period of history and art? Let's look it up."

After hours of our own, self-motivated research, I can tell you two things: One, we had just engaged in art and history education on our own terms, for fun, in a way that would have never crossed our minds if we weren't inside this empowering, constructive environment. And two, by the end of the day we had the best-looking chair in the whole MOO.

THE TEXT AS A WORLD

This chapter asks us to think about text as worlds, to think of reading as exploring, to think of writing as building, to fuzz the boundaries between reader and player, to see text as a chance to step into an ecology. I will begin by exploring contemporary game and play research which revolves around the study of the game as a virtual space that allows for engagement, creation, and immersion, and, thus, is conducive to transformational learning. If we can immerse our students in these "textworlds," we will be creating passionate affinity spaces for learning, built from the bottom up on the values that inspire revolutionary learning. In this chapter, I move from Chapter Four's exploration of text through a gaming lens and into a view of text as a virtual environment. In doing so I bring this Microworld Pedagogy through exploration of a contemporary resurgence of text-based virtual wordplay found in games and studies that revolve around Interactive Fiction. After establishing the potential and theory of using text to create a virtual space, I will move into an exploration of the MOO, working through '90s theories behind what made the MOO so effective and so pedagogically interesting, and then will combine these theories to situate the theoretical grounding for making a Modern MOO, one that brings back the excited ideas of '90s postmodern textuality and connects it to contemporary theories of engagement through game and virtual play. From there, I will outline the thinking that lies behind the creation of a modern MOO prototype, which attempts to both reach back to recapture the spatiality of

'90s MOOs and reach forward to tap into the discourse of Interactive Fiction creation. To close

the chapter and this dissertation, I will ruminate on the limitations of the project, speculate about

where to take it from there, and talk about what to do with these ideas in the meantime.

CONTEMPORARY TEXTUAL VIRTUALITY: INTERACTIVE FICTION

Although the brunt of my research on text-based virtuality stems from the '90s rise of

virtual networks and hypertext experiments, it should be pointed out that Interactive Fiction

games and theory are still going strong. A look at the Apple App store or the Google Play store will

reveal hundreds of Interactive Fiction games, which may range in terms of multimodality, but

nevertheless are built on the same body of ideas: Using text as the main vehicle, players read

engaging works of literature that ask them to make choices that feel like they matter. Through

the reading and playing of these texts, players and app authors together participate in the

creation and performativity of textual worldbuilding. See, for example, the games by Inkle Studios,

which include *Sorcery!*[6], a work of Interactive Fiction with over 100,000 downloads, and *80 Days*[7],

an Interactive Fiction game with over 50,000 downloads and rewarded on the Google Play app

store with the "Editor's Choice" award. Both of these games use Inkle's *Ink Script*[8], an open source,

open licensed Interactive Scripting language that allows anybody to download, tinker with, and

then produce their own works of Interactive Fiction. In addition, Choice of Games LLC[9] hosts a

---

[6] See https://www.inklestudios.com/sorcery/

[7] See https://www.inklestudios.com/80days/

[8] See https://www.inklestudios.com/ink/

[9] See https://www.choiceofgames.com/

variety of hit games playable across app stores and online. In addition, they offer writing tools and publishing opportunities for writers at all levels. There are also Interactive Fiction communities that share resources, provide feedback, host stories, and run competitions, gamejams, and remix events, such as the Interactive Fiction Technology Foundation [10] and the Interactive Fiction Archive.[11] The work produced here in these communities are ripe for community, collaboration, publishing potential, and critical analysis.

These interactive works of fiction have invited in-depth, theoretical musings about the suddenly permeable boundaries between author, worldbuilder, reader, and player, all of which generally revolves around the importance of how Interactive Fiction creates a virtual environment that can be explored and played rather than simply read. In "Click = Kill: Textual You," Ensslin and Bell meditate on the shifted paradigms necessitated when attempting a close read of digital fiction (Ensslin and Bell 1). In Interactive Fiction, one must distinguish between layers of relation between the virtual world that is created via interplay between the player inside the textual world, and the reader who reads/plays it from the external world of 'reality.' Nick Montfort offers the terms *diagetic* and *extradiegetic* to help us classify these concepts; the former represents actions and placement that occur within the virtual world itself, where the reader thinks of herself as a virtual character inside a virtual world, and the latter to represent thinking of the virtual text as a game which can be read and manipulated as a text, outside of the world it creates (Montfort, *Toward a Theory of Interactive Fiction* 311). Ensslin and Bell argue that a close reading of this kind of work

---

[10] See http://iftechfoundation.org/
[11] See http://www.ifarchive.org/

requires a "systematic engagement with the possibilities and limitations of the form," navigating the diegetic and extradiegetic features of the text while being "involved in the ongoing, material construction of the text as they traverse:" by making choices within this world, the readers engage in the writing of how the narrative unfolds. Thus, argue Ensslin and Bell, you, the *textual* you, become the main character of the text that you, the *nontextual* you, are reading/playing (6). Brendan Desilets defines this blending set of positionality and identity as the "third self:"

> *The player/character, who is usually referred to as "you" in an IF story, represents some unusual challenges for a writer. Perhaps the most compelling of these is that, in interactive fiction, the fundamental thrust of the genre causes the reader to conflate herself with the player/character. This uniquely tight identification of the reader with a character gives birth to the "third self" of the IF author. This "third self" is the reader. In interactive fiction, the reader does not merely relate to the player/character. The reader "runs" the player/character in an intensely intimate way and thus takes on a sense of responsibility for what the character does. (Desilets 180)*

This positionality is effected by the fact that Interactive Fiction stories can be defined beyond being a text or game, but as a world. In Nick Montfort's exploration of Interactive Fiction, he argues that a work of IF is "neither a 'story' or a 'game,'" but is instead a "'world' combined with a parser and instructions for generating text based on events in the world" (Montfort, "Interactive Fiction as Story" 316). Puzzles, for example, can be designed to have the player

interact with the world and then, once being solved, pull the reader/player into deeper interaction/engagement with the world. Although Montfort points out that some have argued that "without puzzles, or problems . . . to allow the player to receive the text a little at a time . . . there is no interaction" (qtd. in 314), Montfort offers that "IF has been devised without puzzles; conversation and exploration rather than puzzle-solving allow one to move further through these works while interacting" (314). IF texts, then, must be seen above all else as "simulations of a world" (ibid.), one which is built around the reader/player and works to engage her through the mechanics of the world.

The "Worldplay" of Interactive Fiction works to convey the strengths of literature alongside the flexibility and engagement of virtuality and play. In "IF as Argument," Duncan Stevens toys with the idea that Interactive Fiction can do anything, can invoke any literary style of composition or trope, that "static" literature can do, and more, considering its layers of interactivity:

> *It has been argued that, in theory, interactive fiction should be able to do anything that static fiction can do, as static fiction amounts to interactive fiction that consists of one move (>READ STORY) and more interaction should enrich the storytelling experience, not limit it. The merits of that proposition can be debated, but there's certainly substantial truth in it, and it follows that most of the techniques and subjects that can be usefully employed or explored in the realm of static fiction should be adaptable to interactive fiction. (Stevens 101)*

Duncan explores as example the ability for Interactive Fiction to parallel books such as *1984* in making an argument through depictions of dystopian futures. Can an Interactive Fiction story execute such advanced models of narrative and literary rhetoric? Certainly. Could an Interactive Fiction novel stand at some point alongside the works of literary greats, across history? I think so, and I hope so. In either case, the blend between writing and coding/playing makes for powerful pedagogical opportunities which situate students as both players, coders, and writers, allowing them to develop traditional writing abilities alongside the development of play and other 21st century literacies. Brendan Desilets offers that the nature of Interactive Fiction promotes deeply motivational pedagogies in the classroom which have the students engage with literary modes of reading and writing in immersive and playful ways:

> *Interactive fiction offers lots of instructional advantages, including its motivational effects; its usefulness in teaching conventional literary elements such as plot and theme; its unique qualities as a problem-solving tool; and its natural inclusion of helpful stopping places for instruction. But interactive fiction has a less obvious advantage, too. It's a uniquely powerful tool for helping students to read more fluently. (Desilets 48)*

As one example, Desilets points out that writing and reading/playing IF involves a great deal of repetition. In no other literature (except perhaps, he offers, poetry) will a reader/player naturally be made to return to, consider and reconsider the same block of text, but in Interactive Fiction, as reader/players navigate from space through space, they will be made to return to the same

texts in new ways, in what Desilets calls a "classroom performance in the form of guided oral reading" (49). This speaks to my pedagogical arguments of learning through immersion: when the text becomes a space that is navigated across directions and modalities, the learning comes from all directions; the learning is bottom-up, messy, and naturally contextualized: the learning is constructionist. Interestingly, Desilets also brings up Papert and his constructionist pedagogy, but extends Papert's method to go beyond coding in LOGO with the narrative benefits of coding in Interactive Fiction:

> *This Logo code is easy enough to teach, and it includes some "powerful ideas," such as the use of a variable (:SIZE) and the odd notion of recursion, through which the procedure called "GROWSQUARES" starts increasingly large iterations of itself (GROWSQUARES :SIZE +5). However, if we want to instruct students the writing process without having to teach for transfer in a very vigorous, time-consuming way, we would be better off with a programming language whose code looks more like an essay. (103)*

Indeed, coding narrative stories becomes a blend between languaging and coding: writers weave sentences together, in codelike ways, which become much more accessible and more directly connected to the product than the lines of code that, as in LOGO, would, for example, direct a program to draw a flower. See, for example, this block of code I wrote while teaching myself the *Ink Script* language:

> *===GRASS*

YOU ARE STANDING ON A GRASSY PLANE. A CONFIGURATION OF THREE LARGE STONES

LOOMS HERE, FORMING WHAT SEEMS TO BE A DOORWAY. {RAIN: IT IS RAINING

MODERATELY. THE STONES SEEM TO BE GLOWING.}

YOU SEE A CLIFF FAR TO THE NORTH, AND HEAR FROM THERE A ROARING WATERFALL.

A PATH WINDS ITS WAY WEST AND DISAPPEARS INTO A GROWTH OF TREES.

TO THE EAST, YOU SEE A LARGE LAKE.

+[GO NORTH TOWARDS CLIFF] YOU BEGIN HIKING NORTH TOWARDS THE CLIFF. -> CLIFF

+[GO WEST TOWARDS TREES] YOU FOLLOW THE PATH WEST UNTIL YOU FIND YOURSELF

SURROUNDED BY TREES. -> TREES

+[GO EAST TOWARDS LAKE] YOU HEAD DOWN TOWARDS THE LAKE. -> LAKE

+[EXAMINE STONES] YOU APPROACH THE STONE STRUCTURE. -> STONE

The first line, here, tells the game that this is a 'room,' or a 'space,' titled "Grass." The concept of the "room" is an essential component to Interactive Fiction; IF stories are composed within networks of rooms. It is in this sense that IF has such a sense of world and space. In "Toward a Theory of Interactive Fiction," Montfort elaborates:

> *The IF world is divided into discrete locations known as rooms, which*
>
> *have also been called locations and areas. Like other essential elements*
>
> *of the form, rooms are defined independent of their implementation. A*

204

room is a simulated place from which a certain set of elements in the IF world can be sensed, manipulated, or otherwise acted upon. A room quite often contains objects; of course portable objects may be present or absent in different situations and objects that are present may be configured differently (for instance, may be open or closed). (Montfort, Toward a Theory of Interactive Fiction 42)

The room "Grass," then, is set on its own line, functioning much like a header would in a traditional essay. The three equals signs tells the INK program to title the room "Grass" and treat the next text as the description of the room. The block of text that follows is purely creative writing which functions to describe the space. The bit set off in curly brackets is called a conditional: the text within the brackets only shows if certain conditions have been met. In this case, it only shows if the game state is 'raining.' The next couple sentences are devoted to describing the neighboring spaces of the area. This too is described through straightforward, creative writing. The final part in this segment is devoted to giving the reader/player options: each '+' symbol tells the system that the following sentence is a command that they player can take, written in brackets, and then what the player sees if she selects it, written after the brackets. The arrow, then, marks a move to the next room. We can see here the seamless blending between coding mechanics and creative/literary writing: the whole snippet is ordered like a paragraph, with a header, orienting language, and then language devoted to concrete actions and transitions. And yet the text here is also alive, structured in a way that positions the reader/player locationally inside a living world, in which the player, in any order, can navigate in multiple directions and can examine elements within the world within an environment that grows and changes (conditionally, with the rain)

around her. The blending, here, of code mechanics translated through intuitive structure and natural language, creates a powerful combination that, I believe, offers advantages far beyond the sum of either part. Duncan Stevens also muses on the power of natural language coding:

> *Natural languages make story-tellers of us all, and are well-adapted to the description of situation and event. Semantic analysis may be able to tell us what concepts and structures within natural language give it such facility in story-telling: looking for the presence or absence of these features in programs for writing IF may provide an insight into why certain kinds of IF are written but not others.*

> *. . . "Writing" is an ambiguous term: it might equally well mean a set of markings on paper, the activity of putting words together, or the prose that results: and for the same reason we must be precise in what we mean by "programming IF," and in what we are claiming about it. First I suggest that the activity of programming IF is a form of dialogue between programmer and computer to reach a state with which both are content, and that it is not unlike the activity of playing IF, also a continuing dialogue in which the computer rejects much of what the user tries. (Stevens 142)*

Just looking at that snippet of code gets gears inside my head moving. I could add a mechanism of light to heavy rain. I could start fleshing out these stones that lie in the center of the grassy

plane, writing mystery and gearwork into these artifacts. I start thinking, writing, and composing

the world just by looking at this passage, and the passion-fueled feeling I get when doing this is

what I want to kindle in my students. But for now, I return to writing in this traditional essay style,

and I return to Desilets.

Desilets argues that the act of creating (good) Interactive Fiction stories involves the same

conventions we need for (good) traditional writing. Desilets explores the importance of clarity

when making an Interactive Fiction game, for if the world, its characters, and the ways it functions

are not clear, the reader/player will not be drawn into it (Desilets 127). In "Toward a Theory of

Interactive Fiction," Montfort also explores the relationships between (good) writing and (good)

IF crafting, starting with the consideration and literary quality a writer must put into the

characters that populate these Interactive Fiction worlds, which are called in IF and Game

communities "NPCs," which stands for "Non-Player Characters:"

> *Good writing, of course, is the linear fiction writer's key to creating*
>
> *believable characters without any interactivity at all, and the text*
>
> *elements of the interactive NPC—description, dialogue, and actions—are*
>
> *no different from those of the fictional character. (Montfort, Toward a*
>
> *Theory of Interactive Fiction 14)*

These NPCs are woven into a game and can become intrinsic to the plot as well as the puzzles and

mechanics of the narrative, but they have to be believably and emotionally shaped. In Montfort's

explanation of "Mood Mazes," we see again another plane of construction that blends literary,

creative, affective writing with game and code mechanics:

Characters with "mood mazes" have many possible uses in a game. Some

moods may provide vital information; other moods may make the

character more receptive to requests for help. Moods might also be

triggered by giving or showing certain objects to the NPC, or asking her

about certain things, or bringing other NPC's into the room . . . The

possibilities for creating intricate social situations are nearly endless. (17)

Desilets also details how the creation of an Interactive Fiction game involves the elements of

composition we drill into our students in every writing class: those who write Interactive Fiction

must begin by drafting out the world, "creating source text and testing the source text by trying

to compile it" (131), revising it through thorough peer revision, which can also be defined as

"playtesting" (131), editing (136) across all levels including the coding layer, the spelling and

grammar layer, and higher level critical and rhetorical layers, and then, finally publishing (136),

which, Desilets points out, in the case if Interactive Fiction, can involve a host of multimodal

writing tasks and genres: "Quite easily, an author can include, in her final, compiled draft, cover

art for her story, a booklet that introduces interactive fiction, a website about her story, a link

that allows a reader to experience the story over the Web, and a walkthrough" (136-137). In this

publishing stage, students can become members of Interactive Fiction communities all over the

web, some of which are outlined by Desilets:

The interactive fiction community offers an active group of readers, too,

reachable through the Interactive Fiction Forum

(http://www.intfiction.org/forum/). The Interactive Fiction Archive

(http://www.ifarchive.org/) houses thousands of IF stories and related

material. So does the Interactive Fiction Database (http://ifdb.tads.org).

New contributions to the archive often attract readers and, sometimes,

reviewers. Competitions for interactive fiction occur often and help to

provide readers for new stories. The most prominent of these is the

annual IF Comp (http://www.ifcomp.org/). (137)

Guided by the revision and the passion of these affinity spaces, students can work to expand their Interactive Fictions with more advanced programming (delving through Ito's Geeking Out phase), incorporate graphics, and even attempt to sell the game on the App Store.

By having our students write, read, and play Interactive Fiction, we immerse our students in Microworld Pedagogy. This can be used to great effect, and it has: I have conferenced on and shared wonderful works made by my students using these Interactive Fiction tools. But can we take it further? If we were to combine the blended act of Interactive Fiction writing with the community of a multi-user virtual environment, if we could have students explore, write, and interactive collaboratively and within communities of cocreation, we will be combining the pedagogies explored across all five chapters of this dissertation. The ideal platform for this, I argue, is the MOO.

MOOS AND MUDS

Hypertextual potential, combined with a rising interest in Constructionist pedagogy, presented a groundwork for experiments in networked communication on computers as part of the learning experience. The MOO became the site for both the enactment and the study of this

phenomenon: the researchers and teachers formed prolific communities over dozens of MOOs, creating the very communities they were discussing, through an emergent textuality. In *High Wired*, Haynes and Holmevik expand on this idea: in the MOO the writing process becomes a dynamic process that is effected in real time as real people engage in actions, conversations, performance and creation in virtual spaces, the construction of which is yet another layer of this performative creativity:

> *What makes this genre of discourse architextural (and generative) is that discussants engage in real time, by writing text in a space that is itself textually assembled, or constructed. and performed by personae that are themselves textually constructed in descriptive and narrative forms, and who assume identities that may be equally constructed. (C. A. Haynes and Holmevik 11)*

The MOO is capable of giving birth to endless streams of text, personae, and virtual spaces (11). Haynes and Holmevik use the MOO as a platform for what they call *cypher/TEXT*, which draws from the rhizomatic properties of Hypertext theory and extends it with the multiple dimensions provided by situating this text in a dynamic virtual world:

> *It is our goal to conceive new metaphors with which to play the bricoleur, to design the space with text as the primary metaphor and building blocks. This is what we call cypher/TEXT: a word that assembles in one term the notions of cyber, hyper, text, and most important of all, the*

reader herself. We think of it as a three-dimensional text, though not in

the conventional physical definition of that phrase. (10)

Where Hypertext allows for decentered and participatory reading and writing, *cypher/TEXT* blends this process with engagement and interaction of being in the space, having it be spatial; enacting the writing process through speaking, acting, creating, and existing as a being/entity who is also constituted by the living text that is the environment:

While traditional text can be thought of as one-dimensional and linear,

and hypertext as multidirectional and two-dimensional because of its

ability to link documents, cypher/TEXT adds a third dimension by bringing

the reader/writer actively into the text. In the MOO, the reader is

represented through textual descriptions. You interact with others

through textual dimensions, through textual ethos. pathos. and logos.

Thus, readers speak, emote, and think in several dimensions, but more

than that-they are a textual dimension in and of themselves. (10)

The users themselves become entities of the living text they interact with and within. In "Teleprompting Élekcriture," Haynes and Holmevik expand on this idea in a meditation on what moving, living text can do: "moving text transforms thought into image and image into memory. . . . we are interested in the un-character that un-does static print—that imagines us caught in a thicket of the thickest thieves: language and motion" (C. Haynes and Holmevik 2). The MOO, Haynes and Holmevik argue, becomes a focal point for this theory as it serves as site for this living

text; as text-beings exist, communicate, and write, they engage literacies across the paradigms of orality, literacy, and electracy:

> *When we first met in the text-based virtual community, MediaMOO, we quickly understood the power of writing in motion. The MOO is a blend of text and image, and of orality and literacy. Oral insofar as the interaction among writer/speakers in the MOO reproduces oral conversation via written text, literate insofar as the writing requires fluency to produce meaning. The interesting, and innovative, aspect of this phenomenon is that in the MOO tightening (and blurring) the orality/literacy split is achieved visually. (6)*

Haynes and Holmevik use this theory to modify Cynthia Haynes' concept of élekcriture[12]: adding a 't' to this, to create *télekcriture*, which represents "a small patch," to the original, an update to a program, to extend living language across "the most basic qualities of flux: rhetoric, rhythm, and reciprocity" (9). Télekcriture is an understanding of language that mixes and subverts space and time, it's dynamic, and it's born through continual, digitally-spatial interactivity: "As a rhetorical machine, télekcriture mixes language, writers, and distance, then reconfigures them as sustained contextual real-time interactivity" (9). It is the added element of people coexisting in dynamic

---

[12] As described in "Artic Virgins: Élekcriture and the Semiotics of Circumpolar Icon(o)Graphé." Haynes' Élekcriture is a term that frames Ulmer's Electracy with a splicing of "what some French feminists call l'écriture féminine, writing that resists the masculine economy under which women have labored, suffered, and forcibly learned to be the objective counter-part to man's self-awarded subjectivity" (Haynes 258); a view of language built on digital dynamics and anti-certainties, which allows for distance from traditionally patriarchally-controlled conventions of language.

social settings that adds to the dynamic nature of the MOO and distinguishes it from the much more controlled narratives of single-user Interactive Fiction games. This social element, though it makes cohesive narrative much more difficult to control, bursts with potential that resonates with my explications of network theory and affinity spaces in Chapter Three. Amy Bruckman and Mitchel Resnick's explication of MediaMOO serves well to illustrate the kid of communal co-creation and living writing that happens in these spaces. MediaMOO came together as a MOO for teachers, journalists, and educators; anyone who was involved in the study of networks, media, and language were welcome to create a character and join a community interested in getting together in a virtual world, making connections, and sharing ideas. What distinguished this act beyond the acts of simply sending messages to each other or socializing in chatrooms was the fact that the users of MediaMOO were coexisting and building the virtual world around them:

> *However, name tags alone are not enough. The best sorts of interactions occur when people participate in a shared activity and not just a shared context. On MediaMOO, this takes the form of constructing and interacting with the virtual world. The constructionist theory of learning emphasizes the value of constructing personally meaningful artifacts[1,2]. This theory has guided design decisions made in MediaMOO. For example, in most text-based virtual reality environments, the privilege to extend the virtual world is restricted to a small number of users. Everyone in MediaMOO is automatically a programmer with full privileges to*

create new objects and places in the virtual world. (Bruckman and

Resnick 2)

The philosophy behind MediaMOO was user-centered: the MOO started with a simple skeleton that anchored the roots of the world, and the rest of the world was elaborately, colorfully, and collaboratively filled in as researches joined, read, and wrote themselves into it. Researchers from all over the world filled the virtual space as they made their homes, each an imaginative expression of their interests and personalities. They came together in informal hangouts such as coffee shops and cafes, and they added complexity to the world, and convened together in the kinds of ways that academics can do in "real life," participating in reading discussions over digital coffee and poetry readings:

A community of writing teachers organized by Tari Fanderclai and Greg

Siering meets every Tuesday evening at 8 pm eastern time in "The

Tuesday Café" to discuss how computer technology can be used to

improve writing instruction. Fifteen to thirty people attend each week. A

group organized by Marcus Speh meets regularly to discuss the Global

Network Academy, an organization working to use the Internet for

education. A group organized by Lee-Ellen Marvin have regular poetry

readings. (5)

User-moddable objects--which were open to expansion by any passerby--exploded with color and complexity. For example, a bartender at a favored gathering spot could be given new drinks to make. A closet that held a wardrobe of clothes expanded with strange and new clothing ideas.

These "contributory objects" functioned to promote the sense of the constructive community while allowing even those without much programming experience a way to affect the world around them:

> At the MediaMOO Inaugural Ball, people spent as much time in the dressing rooms as in the ballroom itself. The costumes on the rack are effective conversational props. More important, however, is the fact that it is easy to contribute a new costume to the rack. One can simply type "design Convergence T-Shirt and mirrorshades for rack" and it is added to the collection of available costumes with the designer's name attached. Contributory objects offer a lower threshold to participation than actually programming a new object. The user has a sense of having taken a first step towards mastering the computational environment, and a sense of having contributed something to the community. (9)

The world filled out in a rhizomatic expression of creativity and personalities, one which was called a "multicultural mess" (9), which Bruckman and Resnick write about proudly.

The world became space not just to networks of creative interest, but networks of shared activity: speeches occurred in real time and gathered large crowds. Discussions ranging from the possibilities of the technology to the nuances of how this society of people should be run spanned across the online bulletin board that served as an internal "discussion board" for the residents of the virtual world. Drawing from Papert's pedagogy of constructionism and his work with the LOGO environment as well as the conversations that played out throughout the life of MediaMOO,

Bruckman and Resnick argue that this constructive environment could make an excellent space for self-motivated, exploratory learning, natural scaffolding of multiple concepts (e.g., a student would begin just by 'playing' and exploring the world, then could copy the objects within it, then learn programming as she modifies and extends the objects creatively), a space for expression and play with identity and creativity, an excited and engaged community within which mentorship and inspiration would flow in multiple directions, and opportunity to learn through student interest and agency (7-8). At the end of their article, Bruckman and Resnick argue that the next step may be make the MUD language more accessible to children:

> *We hope to apply lessons learned in the development and use of the Logo language to make a MUD language more accessible to kids . . . If the power of this technology is to be unleashed, users need to be the creators and not merely consumers of virtual worlds. We believe that constructionist principles are of central importance to the design of virtual reality systems. MediaMOO is an exploration of this idea. (13)*

This idea would foreshadow the work she would do in MOOSE Crossing, the MOO where I, as a kid, logged on and made my wings. Amy Bruckman built MOOSE Crossing with Papert's accessible LOGO system in mind: by simplifying the operators in the code, Bruckman created a MOO that even young children could quickly learn to work and build within. In her dissertation, she describes how the children within this digital environment build multiple fantastic identities, create their homes, communicate and play together, get inspired by each other, and mentor each other, all interspersed randomly and progressively through the processes of spending time, socializing, playing, and building within the virtual world. Here, just as in MediaMOO, the inhabitants are

216

allowed to "write" themselves, to write their identities, though, Bruckman reveals, with children this kind of identity formation can be much more earnest and has direct ties with the child's development. In her examination of the child Mouse, for example:

> *Despite the fact that the children rarely explicitly role play, the way a child*
>
> *(or adult) chooses to describe himself or herself is still a window onto that*
>
> *child's sense of self. It's not an accident that Miranda's younger sister*
>
> *chose the character name "Mouse." As the younger child in the family,*
>
> *Mouse (girl, age 8-10) has an acute sense of being small and not able to*
>
> *do all the things her big sister can do. (Bruckman 22)*

And yet, Bruckman reveals, as she continued to "hang out, mess around, and geek out" in this virtual space, Mouse's "self confidence (and her writing ability)" grew throughout the year (22). She grew, it is argued, by continued interaction with constructive environments with an engaged community. The community, which functions as audience, fuels a lot of the passion that happens in the space. Bruckman offers as example a space that the child "Jack" has created: a pool, where people would congregate and hang out: "Jack has programmed the pool so that you can do lots of things there including dive, surface, splash someone, dunk someone, and swim laps" (23). That was me. I remember struggling with that pool. I remember trying to keep three layers of activity straight—being under the water, being in the pool but not underwater, and being outside of the pool—and having the actions that you can or can't do reflect those changing states. It was a frustrating project and there were times that I wanted to give up, but I didn't, because other kids loved the pool. They kept coming to it. And there would be nothing that pleased me more than logging in and discovering evidence that people had come over and "hung out" at my pool while

I was gone. It was for these reasons that I continued to labor and write this pool: it was for the community. Bruckman argues that community and construction activities are mutually reinforcing:

> *The central claim of this thesis is that community and construction activities are mutually reinforcing. Working within a community helps people to become better dancers/programmers/designers and better learners. Conversely, working on design and construction projects together helps to form a strong, supportive community. (16)*

The community provides support, relevance, input, and audience, the building serves as the creative, co-constructive, and constitutive activity that situates, houses, and keeps the community involved. Haynes and Holmevik agree that the community is a key element of the MOO's collaborative environment (148), and this can contribute to a pedagogy of textual play and immersion. In *MOOniversity*, Cynthia Haynes and Jan Holmevik further these experiments with the classroom MOO, explicating and instructing how MOOs can be run and used educationally. Haynes and Holmevik meditate on the ways that MOOs are similar to, but also expanding, the writing environment and the classroom. In the MOO students are writing all the time: this is a necessary element of living in a world that is comprised of text: to engage with the world, one must become immersed in text: one must write as the material of this virtual reality, and the more one writes, the more one develops as a writer (Holmevik and Haynes 37). To take this further, the MOO environment extends the concept of writing dialectically: the habitual, environmental writing students engage in within this virtual world is reflexive and responsive. The MOO environment, like a word processor, functions via writing text, which can be exploratory,

argumentative, or creative; but the word processor doesn't "talk back" to the writer (146). On the

MOO, the writer's work becomes part of a living world, reflexive of the rest of the community.

Haynes and Holmevik also point out that, because the world operates as live text, the dynamic

and improvisational flows of dialogue and communication can be remembered, copied, and

pasted, and subject to later analysis, rhetorical analysis, and revision. Papers have been written

as a result of live conversations which serve as a real-life form of "drafting" in the moment (132).

To invoke this platform into the writing classroom, Haynes and Holmevik explain, is to refigure

the classroom across time, space, and place:

> *The beauty of learning in MOO space is that it takes the notion of*
>
> *classroom and redefines the meaning of that term and the boundaries of*
>
> *classroom space. It also undoes the meaning of class time. Time and*
>
> *distance have historically served as fixed limitations in educational*
>
> *institutions. (125)*

It blurs the lines between the online students and the local students, allowing all of them to

mediate their work synchronously, asynchronously, virtually, and physically.

In their heyday in the '90s, there were hundreds of MOOs and dozens of MOOs devoted

to education and research. In an appendix to *MOOniversity,* Haynes and Holmevik list 40

educational MOOs which served as sites for subject research of all kinds, from BioMOO for

biologists, CollegeTown and of course their LinguaMOO for MOOs at the college level,

ScienceMOO, the Virtual Writing Center MOO, and even a ZooMOO (165-168). Today, MOOs

haven fallen from common usage, but work in text-based virtual environments remains active,

especially in Interactive-Fiction applications and games, as explored above. But, as I've argued, I do believe that with the loss of MOOs, we've lost something that IF work would greatly benefit from: text-based virtuality and collaboration. This is an argument to use old technologies in new ways: this is not an unprecedented move. Florian Cramer's "What is Post-Digital," for example, describes post-digitality as hybrids of 'old' and 'new' media, revealing and characterizing ever-circulating perspectives and frameworks of technology (Cramer 11). The old informs the new, the new turns back and re-informs the old. Can we rekindle some of this past interest if we look back at the MOO with the research and knowledge we now have? Can we tap into these pedagogical ideas, again, and have students become immersed in textplay as they work in virtual environments? To do so we would have to transform the MOO environment of the '90s to operate in the ways that platforms we use today operate, and we would have to let this work speak to, and be informed by, contemporary theories about game design and Interactive Fiction. What if we could use the MOO as a virtual, community-constructed, collaborative platform for Interactive Fiction?

CONSTRUCTING THE IF-MOO

I started my "Interactive Fiction-MOO" project by returning to my argument that it is the *platform* that can mediate, scaffold, and protect the work within it; that we need better platforms, built, borrowed, or hacked together, to guide the kinds of learning modes, creative processes, and thinking we want from our students. I wanted to build a template that could point to these features. I want to note here, however, that this "IF-MOO" is not the answer to all of our problems: it is one possible genre, out of many possible genres, which is designed to facilitate constructive writing and learning. It won't work for every discipline: each discipline will have to

experiment with its own genres, tools, and required learning styles. Nor will this platform engage every student, nor encourage every student to "geek out" within it. While textual worldbuilding has a lot of flexibility and allows students to work at their own pace and pursue their own interests, it will appeal to some students more than others. The "IF-MOO" should be seen as one possible genre in an ecology of genres: students should be invited in and supported as they learn the system, but they must also be offered other genres, other modalities, and other ways to find and experiment with their voice and creative / communicative / argumentative potential. With all that said, I built a "wish-list" of the values that my ideal platform would have:

The MOO-IF is a collaborative, virtual, interactive fiction platform which is:

1. **A virtual world**: Building happens from within the 'world,' not 'above' it, as in word processers and scripting programs.

2. **A community**: Strong sense of collaboration is built with both synchronous and asynchronous presence. Players chat and 'move' with players through the world and view their created worlds. Players hang out, run workshops and reading groups, and communicate in shared spaces. Bulletin boards or discussion boards, e-mail, etc., and otherwise build the community.

3. **Accessible with coding**: Coding is linguistic, grammatical, semantic. Drawing from Bruckman's concept of code-simplification for children in MOOSE Crossing.

4. **Object-Oriented and Rules-Oriented**: these things are passed down, copyable, readable, and constitute the world, and what can be done within it.

5. **Accessible**: Runs on HTML5 or any other system that needs only a logon to a webpage.

6. **Interactive-Fiction Based**: Generally the engine will be around building interactive fiction, tracking and supporting choices, variables, conditionals, etc.

7. **Instance-Based**: Players can join players in the moment in the 'game', or start a new instance and start the game fresh.

8. **Compatible with Rich Text and Multimedia**: Supports rich text formatting as well as media integration.

9. **Exportable**: Work can be exported and played in standalone clients on the web.

The MOO already had features one through four; it is a 'virtual world' which allows for internal construction, it can promote and cohere communities across synchronous and asynchronous communication, presence, and cocreation, and, in the case of MOOSE Crossing, revealed the potential to simplify its coding language to maximize accessibility. It would turn out that item five was taken care of, as well; the MOO platform had grown in the years since I was building pools and flying dogs in MOOSE Crossing. Now, instead of a telnet client, anyone could log on to an "eWebbed" version of the MOO through their web browser. To explore the possibilities of items six through nine, however, I needed help.

Using a research grant provided by Clemson's Doctoral Dissertation Completion Grant, my Dissertation Chair, Cynthia Haynes, and I were able to fund the travel of a consultant who has spent decades working with MOO environments named Kevin Jepson. We flew him down from snowy Calgary to the Clemson University, where we spent a set of days in Cynthia's office, deep in talks, code, and experiments about what could be done with a MOO to prototype the features of my wish-list.

We started with the most recent version of the MOO. Built on the enCore 4.0 Web system[13] which was developed as the engine of *LinguaMOO,* by Cynthia Haynes and Jan Holmevik, *the* MOO had grown to incorporate graphics, buttons, and links to become a hybrid between text-based virtuality and the point-and-click features of navigation expected in an internet world now synthesized with web browsers. Holmevik's webbed interface harkens back to Chapter 2's discussion of the movement between Web 1.0 and Web 2.0: with two different genres set up to work together, to share information back and forth, unidirectionally and with responsiveness to input from the users, we move from a static form of information to a dynamic, visual, online space.

---

[13] See the *enCore User's Guide* at
http://brn227.brown.wmich.edu/Barn/files/docs/4guide/index.html

Fig. 5. The EnCore Window. The "enCore v.4 User's Guide."

The MOO had adopted graphical, multimodal features to help enrich the content of the virtual environment. Instead of having to memorize textual commands, the means of exploring and navigating the world were presented via clear, shiny buttons that lined the top of the window, a graphical listing of items on the left hand side, a list of links for navigation on the right hand side, and a description pane that could incorporate text, graphics, and other webbed and/or multimodal elements, including embedded videos and sound.

In many ways, this enCore project had already achieved what I had sought out to prototype when I started on the theory of "modernizing" the MOO that had so shaped my

development in the '90s. However, upon playing with the newer platform, I found the graphical, webbed side of the screen to take me out of the virtual world and to interfere with my spatial understanding of the space. When navigation through the space and the examination of the objects within the space could be achieved simply by clicking links, for me the feeling changed from being part of a virtual world to feeling more like simply navigating the links of a webpage. When I brought this up to Jepson, I found to my surprise that he agreed, and in fact had written a message post about this very issue several years ago, arguing:

> *The ability to move through the virtual space is one of the key immersion aspects of MOOs. As I mentioned before, having directions associated with the action of moving solidifies the users perception of where they are. As I wandered through the "link forest" that appears in the WEB page side I did not get a sense of where I was relative to any other place. I found that I had to either use the Map utility or try to remember the names of the rooms I'd been in. . . . In a user built environment, like a typical social MOO or where the students are allowed to build in an educational MOO, the resulting link forest could be very disruptive to the spatial metaphor. (Jepson)*

Jepson's post meditated on the conflicting metaphors between the "website" and the textual, virtual world. Jepson is reflecting here on the spatial differences between navigating a web site, by clicking links, and by being in a text-based virtual world. In Jepson's eyes, these are two conflicting metaphors; one evokes reading a book and following a link to move from section to

section, the other involves navigating through a series of connections which have a spatiality, a locationality; these objects would be imagined within a space which has a North, South, East, and West:

> *We are stuck with the WEB metaphor's links rather than the MOO's exits.*
> *. . . From the WEB metaphor standpoint this is no big deal, nobody knows*
> *or cares "where" a link on a webpage "goes" after all. Neither for that*
> *matter does a user care "where" a shortcut "leads" on a DESKTOP. . . In*
> *a MOO however, the direction and destination of an exit are critical to*
> *the user's perception of a space. It is indeed a holdover from the text-*
> *based world to have each exit referred to by its direction not its*
> *destination, but I think it is important to have those spatial cues. (Jepson)*

Jepson's post also meditated on the mechanical differences between 'moving' and 'looking' between the Web metaphor and the virtual-world metaphor. On the Web, there is no 'looking' that is separate from 'traveling.' If one wants to 'check out' a link, one will click the link and it will load: one will have 'moved' there if we are to think of the Web spatially. In virtual environments, however, it's possible to separate the actions of 'looking' at something, that is, examining it but not touching or interacting with it, and 'going to' it. The links on the right-hand side of the pane, by using this Web metaphor, muddied those spatial signifiers.

After discussing these ideas and trying to theorize the balance necessitated in modernizing the textuality of the space while still maintaining the spatiality and immersion of the environment, Jepson programmed a Webbed client that jettisoned the webbed view on the right-

hand side of the pane and incorporated the multimodal elements into the textual left-side, so that

the text that constituted the environment was more closely synthesized with the multimodal

elements that helped users navigate it. As a result, all attention was devoted to one area, which

combined aesthetic CSS formatting but was infused with the textual delivery of the world (Figure

6). From there, multimodal elements such as images could be embedded into the textbox itself,

so that the multimodal element could be synthesized with the textual delivery of the space (Figure

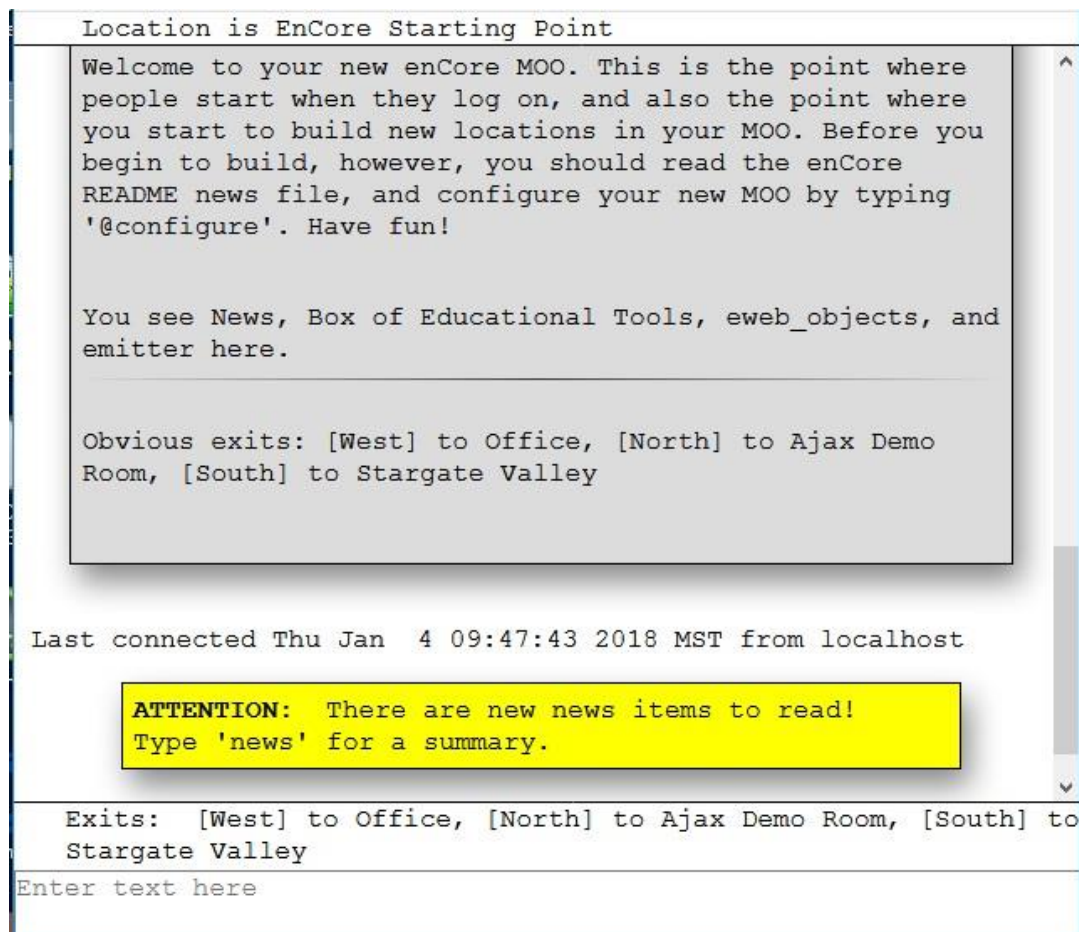7), and then temporarily expanded to represent closer inspection and interaction (Figure 8).

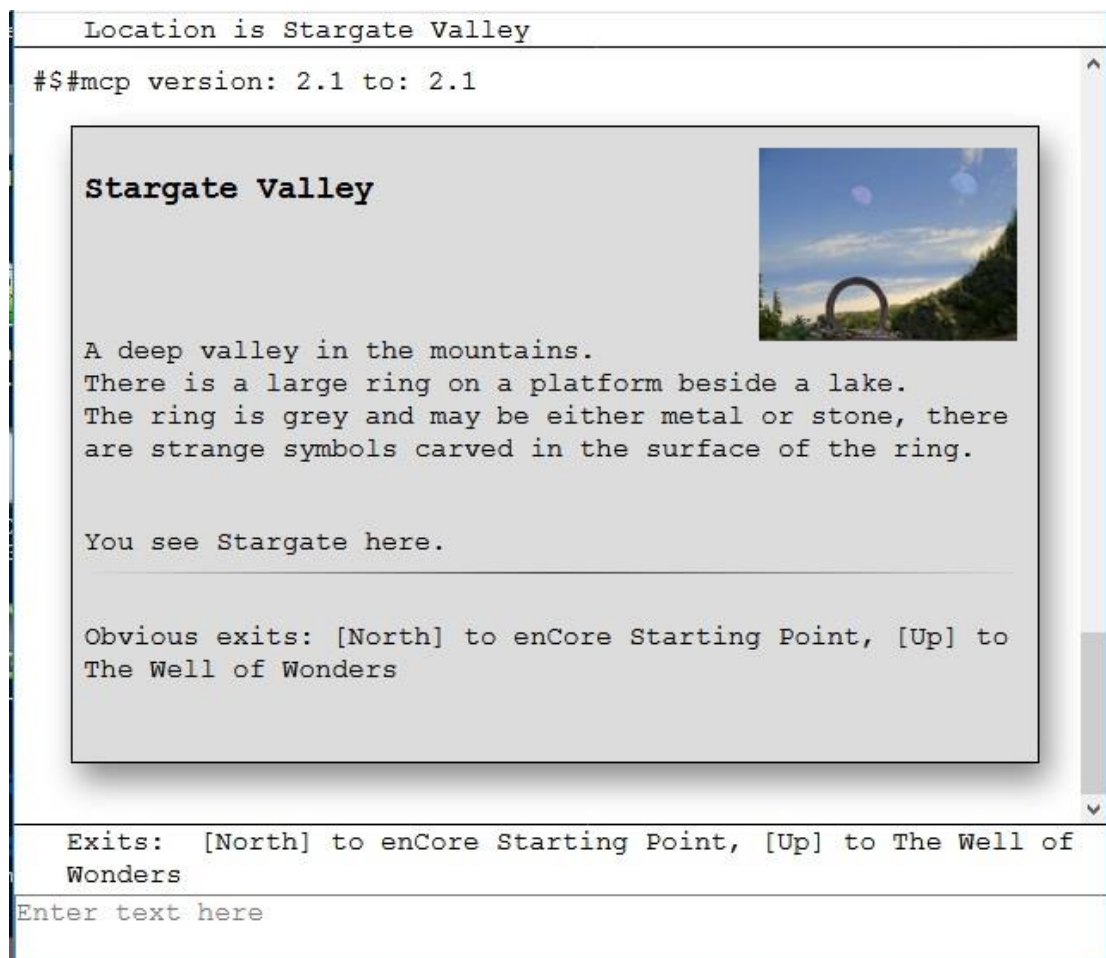**Fig. 6. EnCore Integrated Client.**

```
    Location is Stargate Valley
#$#mcp version: 2.1 to: 2.1

    Stargate Valley


    A deep valley in the mountains.
    There is a large ring on a platform beside a lake.
    The ring is grey and may be either metal or stone, there
    are strange symbols carved in the surface of the ring.


    You see Stargate here.


    Obvious exits: [North] to enCore Starting Point, [Up] to
    The Well of Wonders



    Exits:   [North] to enCore Starting Point, [Up] to The Well of
    Wonders
Enter text here
```
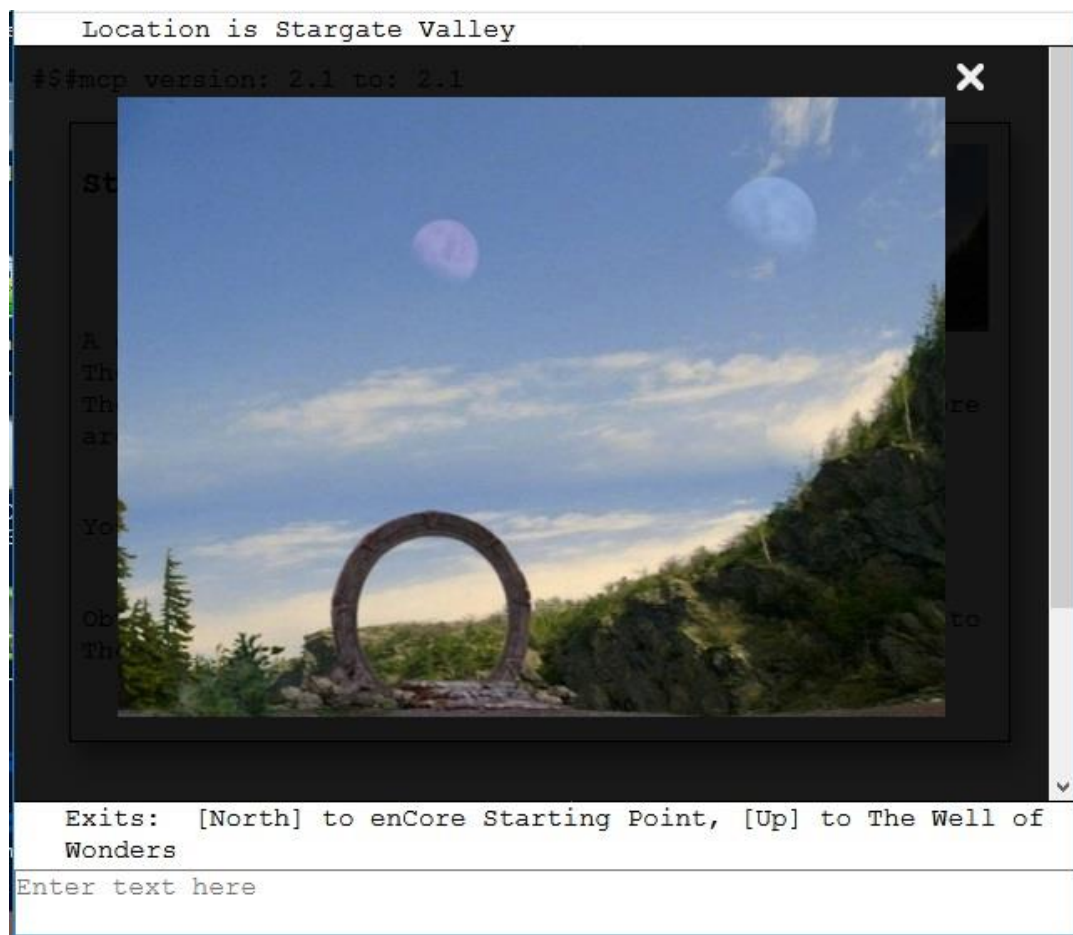
Fig. 7. EnCore Incorporated Images.

Fig. 8. EnCore Image Expansion.

With this integrated multimodality, we were ready to experiment with the process of incorporating Interactive Fiction elements into the MOO. This would prove to be a challenge, because the mechanics of Interactive Fiction, which involve branching yet controlled narratives, were hard to conceive of in the dynamic world of the MOO, which involved spontaneous narratives that would spring from real people conversing and interacting with virtual spaces and objects. An Interactive Fiction Text was essentially a single-player game, where the play within the MOO reflected more the distributed, playful chaos of a Massively Multiplayer Online Game (MMO). World of Warcraft, a popular MMO, had struggled with the difficulties of cohesive

narrative in similar ways: when hundreds of players were thrown about the map engaging in the same quests, how does one create a sense of causality? Player one would solve the quest and save the princess, but then, then Player Two started the same quest, the princess would return to captivity, ready to be rescued again. The world couldn't change. The online game *World of Warcraft* ended up navigating this problem with the concept of "instances:" a player who starts a quest enters into a "parallel world," where she can, either separately or in a party, adventure through a world that would respond to her actions. If another player then started the quest, the player would be transported into her *own* version of that world. The two players or parties would not see each other. Thus, the princess could be rescued, the boss could be defeated, and the dungeon could be burned down, and it wouldn't spring back up again for the next adventurer.

With this model, Jepson set to work on an object he had previously constructed called the "generic multi-room." This room was a portable space which could be teleported into, and, when inside, one could build rooms into it, constructing, in fact, a "microworld." By using this multi-room as the template for an "interactive fiction" object, the idea would be that players could build tiny, portable worlds that allow users to enter into it and explore.

But what about the sense of narrativity and consequence? In order to create a cohesive narrative, the multi-room would have to be able to change and reflect the choices and actions made by the players within. The object had to become what is known by some programmers, as a "State Object," which is defined by Robert Nystrom in *Programming Patterns* as a function which can "allow an object to alter its behavior when its internal state changes[;] the object will appear to change its class" (Nystrom 87). What was conceptualized, then, is a derivation of the "generic multi-room": the "generic state-aware room," which, like the multi-room, could be entered into

and built within, but the virtual rooms within had the functionality of being able to change their descriptions according to the changing circumstances of the controller. The object, then, could become a "microworld" which lives inside the virtual world of the MOO. People could carry these microworlds around, bring them into virtual rooms and homes, places them on textual tables. Then the microworlds could be explored: players could enter into the microworld, and by interacting with the rooms and objects within it, would be able to traverse through a narrative that has a beginning, middle, and end.

Taken together, we have here a MOO that is synthesized with the theories of '90s textuality and contemporary thoughts regarding games and interactive fiction. In a text-based virtual world that is seamlessly fused with multimodal, web-elements, communities can come together in social modes of "hanging out" with each other in virtual homes and coffee shops, "messing around" with the textual fabric of the world, and then "geeking out" into these interactive fiction "microworlds," which play like games, and can be made to produce texts and experiences all across Ensslin's "L-L" ludonarrativity spectrum.

LIMITATIONS AND FUTURE WORK

Due to the limitations of time and budget, we were unable to bring the "narrative object" to a point where any user could start building their own interactive-fiction texts. In order to do so, we would have to construct a system by which users can create links between objects within the microworld and the states that the microworld can move through. What would also have to be considered is the "multi-user" problem: in order to accommodate the impossibility of multiple players working through the same world in different states, either the microworlds would have to limit only one user into the microworld at a time, or to function on an "instance" based system

where each player navigates her own "dimension" within the microworld. I believe that creating this functionality is possible, but it will require some fundamental rewriting of the MOO's underlying code, which is beyond the scope of this dissertation project, but a certainly viable route for future work and research.

To take this even further, one would want to be able to export and share these microworlds with others outside of the MOO environment. The power of current Interactive Fiction platforms is their ease of distribution and publishing. Programs such as Ink and Twine produce HTML files which can be distributed and translated across platforms, allowing authors to share and publish their work, and/or submit the work across affinity spaces where it can be remixed and expanded to produce new work and fuel further "produsage" cycles. The work within the MOO, however, would be constrained to the MOO; unless there were mechanics wherein a link could be distributed that points directly to that object within the MOO: players outside of the MOO would then follow that link and a temporary avatar will be created for them within their own instance of the narrative object. This would allow these interactive fiction experiences to be distributed to wider audiences and even serve as standalone texts. If one wanted to copy and modify the experience, however, one would have to create an account in the MOO that hosts the microworld, join the community, and then work with and modify the narrative object as she would any other object within the virtual world. All this, again, is possible, but would require further rewriting of the core MOO code.

IN THE CLASSROOM

Until we are able to produce a fully realized MOO-IF platform, it's worth noting that microworld writing pedagogy can be employed right now. The goal is to situate students in

networks of creation, using a variety of tools. Once again: We want to create "bazaars" out of our classrooms, where students are working together to experiment across genres, where they share their work, engage in conversation and response, and borrow from and teach each other. Virtual textual worlds and games serve as one of these genres that is potentially ripe with rhetorical possibility. Programs such as Twine, Ink, and Inkle function to let students create interactive texts that can function as living, breathing, dynamic, textual worlds. By creating in these environments, students make combine coding and writing: they combine textual literacy with computational literacy. They write arguments but also design systems. With this genre of work, we can combine practice with writing with the rhetorical possibilities made visible in game and hypertext studies. In *Confronting the Challenges of Participatory Culture*, Jenkins et. al argue that one of the core literacy skills of a 21st century education is engaging with simulation, or "The ability to interpret and construct dynamic models of real-world processes" (41). Thinking in terms of simulation, they argue, builds a range of important literacies:

> *New media provides powerful new ways of representing and manipulating information. New forms of simulation expand our cognitive capacities, allowing us to deal with larger bodies of information, to experiment with more complex configurations of data, and to form hypotheses quickly and test them against different variables in real time. (41-42)*

Indeed, it evokes the learning explored in Chapter Four: it's learning that happens environmentally. They continue:

Young people are learning how to work with simulations through their

game play, and schools should build on such knowledge to help them

become critical readers and effective designers of simulation and

modeling tools. They need to develop a critical vocabulary for

understanding the kind of thought experiments performed in simulations

and the way these new digital resources inform research across a range

of disciplines.

In *The Anti-Education Era,* Gee builds a model for the learning process that engages students fully

in the environment of the learning task called the "circuit of reflective action:" it is a process that

is guided by feedback and mentorship which involves thinking before taking action, taking action,

assessing the outcome of the action, choosing new action or adjustment to the action, and then

acting again; it's learning through awareness of and interaction with the systems at play, and can

be accessed through "building simulations" (14). This, he argues, can also be a form of rhetorical

awareness for students as well. Through simulation, Gee argues that education should teach

students not just how to make arguments and/or information, but how to convey and sell

arguments and/or through stories and experiences: "Imagine a technology that would allow

individuals who are engaged in discussion or debate to offer not just arguments, but *experiences*

to each other" (58, emphasis added). Jenkins et. al list a range of pedagogical ideas that may be

employed by teachers to engage students in this kind of simulation-play; teachers in a business

class can ask students to make imaginary investments, math teachers can ask students to come

up with real-world applications for math theorems, and teachers of literature can ask students to

remix existing media in to games, to create virtual worlds out of the settings (45, 59). All of these things can be done with interactive-fiction platforms.

Pulling this all together, I argue that we can use hyper, cyber, and ergodic text as the fabricstuff of microworld writing. Rather than focusing on any one theory of textuality or any one technology, I offer that we offer these ideas to our students, to show them the work that has been done in terms of thinking about what digital text can do, what can be built, and how we can go about reading it, and then, we give our students the tools and set them off to get to making, to ask them to build text experiences, poems, labyrinths, and adventures. I want to close by showing a few program possibilities for ergodic text that you may consider playing with, and then incorporating into your classroom:

Twine: Using a graphical interface to represent chunks of text and lines to represent the links and choices between them, Twine is a powerful program with flexibility, a low floor, "if you can write a story, you can make a Twine game," it says on the website, and a high ceiling which allows for variables and integration with CSS and JavaScript.

Inklewriter and Ink: The engine behind a popular series of adventure games in the App store, Ink is focused on flowing text that branches out but still moves in one particular direction, allowing for diverts and loops and is designed to simulate seamless dialogue and conversations. Inklewriter is a graphical, point-and-click front-end that I have found works very well to introduce students to this style of writing, but I note that it's being discontinued and is no longer being supported. The Ink platform, however, is still under support, and offers tools to port developing projects into Unity to allow for expansion into more complex games.

Squiffy and Quest: These two sibling programs serve as tools to create, respectively, twine-style choice-based games and parser-based, open world, textual exploration games. The former functions a lot like INK, with a programming language that lets you write out scenarios, choices, and learn simple variables in order to track choices. The latter is a point-and-click program that walks users through building room after room, and designing the setting, objects, and actions that can be taken within it. In my own classes I've used these platforms in an array of assignments, which I'll briefly explore here, in hopes that they might inspire:

The Multimodal Weekly Text: Every week I ask students to remix the content discussed through the week in a creative experiment with the genres we continue to rhetorically analyze in class. As students move through the processes of experimenting, drafting, collaborating with, responding to, and revising creative projects that span across modalities and genres, they become immersed in the messy, bottom-up, student-centered style of learning that constructionism demands. As part of this process, I introduce and scaffold the theory of play, immersion, flow, and procedural rhetoric that revolves around game studies, and involve the class in workshops that have them play with platforms such as Inklewriter and Twine, which enables students to build Interactive-Fiction environments as a means of remixing the content of the week. Through this exercise, one student built a scenario where, as a salesperson, you are tasked with choosing different rhetorical strategies in order to sell cars to the most customers in a day. Another, after a short unit on grammar, built a grammar jungle, which asked players to navigate through a jungle, solving grammatical problems in order to keep a faltering light alive. Another delved into the setting and pathos of a particular battle in World War II, having readers don multiple shoes and make choices across multiple sides in the conflict (See Appendix, "Student A"). Other students

creations include a digital zombies scenario (See Appendix, "Student B"), which is a procedural argument about the overuse of cellphones, and an interactive fiction that experiments with the ways that dialogue choices can build, situate, and navigate a relationship between two friends (See Appendix, "Student C"). In engaging in these adventure remixes, students display full mastery of the original content, and develop coding, creative writing, and digital literacies alongside it as they labor with their creative, personally-driven concepts.

The Book Report/Review/Remix: Ask students to read a book, and then create a game or adventure-text that "remixes" the book, bringing the world and setting of the book to life and engaging with the themes, characters, and lessons of the book dynamically. This assignment is inspired by Barab's work with the "Modern Prometheus" project and his virtual take on the Frankenstein story. By asking students to bring the worlds they read about to life, students must deeply engage in the book. They must pay attention to the details, the geography and historical setting, and perhaps even engage in external research in order to fully represent and expand upon the setting. Students will have to closely read into the characters within the book in order to represent them, to consider how the author has crafted their personalities, speech styles, and behaviors. Students will grapple with the themes and messages of the book and take ownership of them by representing them in new ways through the (re)creation of the world. This could be applied across subjects and genres: students could bring to life the concepts of a science class, a criminology class, or a history class by applying the research to settings that the students design.

The Gameful Argument: Using Bogost's concept of "procedural rhetoric," students can play with the idea of convincing readers/players of things through gameful engagement in virtual worlds. As students labor to convince their readers of their argument not by bluntly stating their

argument but by bringing it and its consequences to life, students will develop nuance and creativity.

The Cultural/Personal Exploration: Zoe Quinn's *Depression Quest* is a text adventure that is designed to have a player experience the thoughts and feelings of someone suffering from profound depression[14]. As the game unravels, no matter what choices are made, players will learn that depression seeps in through the cracks and is not simply "shaken off." A game like this exemplifies Bogost's "procedural rhetoric" by revealing itself not directly but through the choices that are made in the game's world, and in doing so, Quinn effects empathy by having players put themselves into the mind and heart of someone else. Games are powerful tools for this kind of empathic argumentation. Ask your students to build games that shine light on their personalities, the cultures, their interests, and the issues and problems that are important to them. Doing so will build a classroom community of sharing and considering other identities and viewpoints, and help students develop the creative voice needed to bring themselves into the spotlight.

Gameful Activism: Using all the concepts explored here, students can play with creating games that make arguments for change in society. In doing so, students will consider multiple forms of rhetoric, will deliver arguments with empathy and creativity, will become immersed and immerse others in important situations, and, perhaps, may be able to distribute persuasive texts across the internet that may be played, where traditional and oft rehashed arguments won't.

All the works I talk about here reveal rhetorical deliberation as well as deep research into creating a convincing setting, and importantly, all of these projects were dreamed up by,

---

[14] See *Depression Quest* at http://www.depressionquest.com/dqfinal.html.

researched, and pursued by the students themselves, who were propelled by invitations to build, experiment, and play, class discussions of game mechanics, and introductions/workshops with various interactive fiction tools. This kind of pedagogy, I believe, synthesizes some of the best ideas of constructionist and multimodal theory, and would work well across subjects, but particularly in the writing class.

There's more to do with this, but for now, I leave these ideas with you, and invite you to do what I ask of my students: take these ideas, remix them, and build something. The teacher is herself the *bricoleur*, stitching fabrics of pedagogies, content, and activities together, building microworlds of learning for her students. I can't wait to see your work, and the student inventions that spring from it, on the MOO, in the App Store, or across the Web.

APPENDIX: STUDENT REFLECTIONS ON

TEXT-BASED WORLDBUILDING PROJECTS

STUDENT A: "ARROMANCHES-LES-BAINS"

I recreated the scene of D-Day and implemented pathos, ethos, and logos to deliver a story that may change my reader's opinion on World War II due to its emotional statement. I wanted to separate my story from any traditional war story and I did so by humanizing my characters as much as possible. These soldiers aren't simply cold-hearted killers being directed by a command, but humans like any of us - capable of similar emotional thought. I appealed to pathos by naming my characters, giving them an age and appearance and immediately creating connections to readers through them. To quote Envision in Depth, "pathos is more a technique than a state: writers us it as a tool of persuasion to establish an intimate connection with the audience by soliciting powerful emotions." (Alfano O'Brien 52). In Beckett Flynn's case, he's a practicing Christian who just wants to be home again. Many readers value the practice of religion and have felt similar homesick feelings at one point in

their lives. In Erhardt von Brandt's case, he is in love with his wife and son, who he values immensely and would drop everything to return to him. The idea of religion and loving your family will strike an emotional cord and relate the character to a vast amount of readers.

According to Envision in Depth, "logos engages our critical reasoning faculties to make a point…you construct an essay around facts and reason" (Alfano O'Brien 57). I engaged in logos appeals when creating the backdrop of the story. I couldn't be biased towards one man because that simply isn't realistic. Painting Beckett as a war hero who rode off into the sunset untainted while he left a wake of Germans in his path is too stereotypical of an outlook. The truth of the matter is that there were plenty of Germans who were forced to leave their families to fight in World War II and wish they could escape it all as well. Logos is appealed to by the facts that are used in the story such as the actual guns, boats, and manner of attack that was used by the income British troops.

By developing the character's background and appearance I am also appealing to ethos. Envision in Depth states, "ethos works as a rhetorical strategy by establishing the goodwill or credibility of the writer or speaker" (Alfano O'Brien 63). The characters and I gain far more credibility when the setting is set in as much of a realistic manner is

possible. Everything the character does is much more believable in the realistic setting.

By using these rhetorical appeals, I was able to create a story that sent a particular message that outlined the similarities of soldiers separated by a uniform through pathos, ethos and logos..

STUDENT B: "DIGITAL ZOMBIES"

http://dmifrank.com/StudentWork/digitalzombie-inklewriter.html

For my adventure text, I wanted to extend on and critique our conversation about social media and the pervasiveness of technology is our lives. I accomplished this by pulling upon the idea of a "digital zombie," which refers to someone who is so distracted by their electronic devices that they miss out on real experiences. This is an idea that is seen most often in the younger generation as they are growing up in a time when all they have ever known has included technology. Being a "digital zombie" is typically a pejorative used by the older generation to criticize the younger generation. In my game, I utilized this term in a literal sense, which seemed more appropriate for an adventure zombie game. The primary goal of the game was to avoid dying by the hands of the digital zombies. In order to win, the player has to abandon all of their technological devices and live off in the wilderness. This is obviously an

exaggerated solution, that I do not agree with, but thought would make for a more amusing ending.

Working with inklewriter really made me consider the rhetorical situation and refer back to some of the first topics we discussed. According to Envision in Depth, "as a writer, when you compose persuasive texts, you need to determine which strategies will work to convince your audience in a particular situation" (Alfano O'Brien 7). Especially, I found myself focusing on the argument aspect for this assignment because working within a text-based game is a medium that I am very unfamiliar with, so it was initially challenging to express my ideas in this platform. Also, I made the decision to use more informal language with pronouns like "you" and shorter descriptions to keep the game progressing and the player interested. If I had written longer descriptions, the player would be more likely to get bored and the game would be less interactive. When considering audience, I thought the idea of the "digital zombie" was fitting since it is something that most people my age have been accused of being, so it would appeal to my classmates. Also, I was able to maintain "ethos, which is an appeal to authority or character" because the player presumably takes on the role of a younger person, as he/she has roommates, uses popular social media platforms, and seems generally on trend (Alfano O'Brien 51). Largely being a person of this

description, I would consider myself as having some ethos and hopefully that comes across in the thoughts of the character within the game. I also included some "pathos, which refers to an appeal to the emotions" through the use of zombies, which for most, elicits feelings of fear, in addition to having to decide between helping a friend out and watching him die in front of you (Alfano O'Brian 51). These choices and ideas are meant to put the player in a particular state of mind, in this case, that of urgency, alarm, or even panic.

Through the use of these rhetorical appeals and clear understanding of the rhetorical situation at hand, I was able to develop a game that not only offers entertainment and enjoyment, but also serves to as commentary on the increased prevalence of technology in our everyday lives. This dramatized game critiques and refutes the idea that technology is only advantageous and presents the detrimental effects, which is a much darker picture.

STUDENT C: "UNDER THE STARS"

http://dmifrank.com/StudentWork/under%20stars-inklewriter.html

For my Adventure Text, I wrote about a friendship between a boy named Sanyu and a girl named Banhi. Meeting under the strange circumstance of the dream under the stars, the reader is curious as to why that dream

had occurred and what it means. I originally wanted to make this more about superpowers and having to defeat some sort of darkness. However, I just didn't have the time to do so. I decided instead, to write about this friendship and make a point that friendship is a necessity in life to keep people happy. With a friend, your struggles are eased because you have someone to share your pain and sorrow with, as well share your happiness with. I tried to tie in mental health into my story with the first chapter through Banhi's struggle to get ready for class. Many people have struggled with not being in the right mental state but still having to toughen up, put on a mask, and go to work/school, acting like nothing ever happened that morning or night before. The use of pathos was incorporated through the dream, the nervous actions displayed by both Banhi and Sanyu, as well as the description of Sanyu's smile. In the dream, there's a large field and the sky is covered in stars. As stated in Envision in Depth, "Sometimes, the pathos appeal is more subtle, operating by evoking deep feelings such as patriotism, indignation, even hope or fantasy," (52) I tried to evoke a few different feelings through the stars in the sky contrasted with the panic that Banhi was going through. For me, stars make me feel at peace, and have some appreciation for the beauty of the universe. I paired that feeling with Banhi's distress to symbolize the chaos that our minds go through so often. We don't take

the time to stop and appreciate our surroundings. Banhi didn't take time to appreciate the sky until the end of the story. The nervousness that both Banhi and Sanyu displayed is a feeling that connects the reader with the characters. Many people have wanted to talk to someone but felt too nervous to do it, but when they did it, it was much easier to communicate with that person. Or maybe it wasn't. Sanyu's smile was another significant use of pathos. The painful smile he had contrasted greatly with the scene when the two were joking with each other. This was a commentary on how it is so normal for us, as human beings, to laugh off our problems. To improve this story, I would like to possibly add in an alternate ending and add more options to get the reader more involved. I would also love to add more chapters and add more detail about the dreams and how Sanyu and Banhi's friendship progresses.

WORKS CITED

Aarseth, Espen J. *Cybertext: Perspectives on Ergodic Literature*. UK ed. edition, Johns Hopkins University Press, 1997.

Addis, Michela. "New Technologies and Cultural Consumption–Edutainment Is Born!" *European Journal of Marketing*, vol. 39, no. 7/8, 2005, pp. 729–736.

Allen, Nancy, et al. "What Experienced Collaborators Say about Collaborative Writing." *Iowa State Journal of Business and Technical Communication*, vol. 1, no. 2, 1987, pp. 70–90.

Andersson, Annika, et al. "Reclaiming the Students – Coping with Social Media in 1:1 Schools." *Learning, Media and Technology*, vol. 39, no. 1, Jan. 2014, pp. 37–52. *Taylor and Francis+NEJM*, doi:10.1080/17439884.2012.756518.

Apple, Michael W. *Education and Power*. Routledge, 2013.

Arroyo, Sarah J. *Participatory Composition: Video Culture, Writing, and Electracy*. SIU Press, 2013.

---. "Playing to the Tune of Electracy: From Post-Process to a Pedagogy Otherwise." *JAC*, 2005, pp. 683–715.

Baird, Derek E., and Mercedes Fisher. "Neomillennial User Experience Design Strategies: Utilizing Social Networking Media to Support 'Always on' Learning Styles." *Journal of Educational Technology Systems*, vol. 34, no. 1, 2005, pp. 5–32.

Barab, Sasha, Patrick Pettyjohn, et al. "Game-Based Curricula, Personal Engagement, and the Modern Prometheus Design Project." *Games, Learning, and Society: Learning and Meaning in the Digital Age*, Cambridge University Press, 2012.

Barab, Sasha, Melissa Gresalfi, et al. "Why Educators Should Care About Games." *Educational Leadership*, vol. 67, Sept. 2009.

Barczyk, Casimir C., and Doris G. Duncan. "Facebook in Higher Education Courses: An Analysis of Students' Attitudes, Community of Practice, and Classroom Community." *International Business and Management*, vol. 6, no. 1, 2013, pp. 1–11.

Becker, Henry Jay. "Who's Wired and Who's Not: Children's Access to and Use of Computer Technology." *The Future of Children*, 2000, pp. 44–75.

Becker, Melissa Roberts, et al. "Student-Centered, e-Learning Design in a University Classroom." *E-Learning Systems, Environments and Approaches*, edited by Pedro Isaías et al., Springer International Publishing, 2015, pp. 229–46. *link.springer.com*, http://link.springer.com/chapter/10.1007/978-3-319-05825-2_16.

Berlin, James A., and Robert P. Inkster. "Current-Traditional Rhetoric: Paradigm and Practice." *Freshman English News*, vol. 8, no. 3, 1980, pp. 1–14.

Bizzell, Patricia. *Academic Discourse and Critical Consciousness*. University of Pittsburgh Pre, 1992.

Bogost, Ian. *Persuasive Games: The Expressive Power of Videogames*. Mit Press, 2007.

Bolter, J. David. *Writing Space: The Computer, Hypertext, and the History of Writing*. L. Erlbaum Associates, 1991.

Bolter, Jay David, and Michael Joyce. "Hypertext and Creative Writing." *Proceedings of the ACM Conference on Hypertext*, ACM, 1987, pp. 41–50. *ACM Digital Library*, doi:10.1145/317426.317431.

Bongartz, Jenny, and Choua Vang. "Student Pharmacist, Pharmacy Resident, and Graduate Student Perceptions of Social Interactions with Faculty Members." *American Journal of Pharmaceutical Education*, vol. 75, no. 9, 2011, p. 1.

Bruckman, Amy, and Mitchel Resnick. "The Mediamoo Project Constructionism and Professional Community." *Convergence: The International Journal of Research into New Media Technologies*, vol. 1, no. 1, 1995, pp. 94–109.

Bruckman, Amy Susan. *MOOSE Crossing: Construction, Community, and Learning in a Networked Virtual World for Kids*. Massachusetts Institute of Technology, 1997, http://ic.media.mit.edu/Publications/Thesis/asbPHD/PDF/asbPHD.pdf.

Bruns, Axel. *Blogs, Wikipedia, Second Life, and beyond: From Production to Produsage*. Vol. 45, Peter Lang, 2008.

Bull, Glen, et al. "Connecting Informal and Formal Learning: Experiences in the Age of Participatory Media." *Contemporary Issues in Technology and Teacher Education*, vol. 8, no. 2, 2008, pp. 100–107.

Burnham, Christopher. "Expressive Pedagogy: Practice/Theory, Theory/Practice." *A Guide to Composition Pedagogies*, 2001, pp. 19–35.

Cardell, Mikael. *Computers, Storytelling and World Creation The Reader as Writer in Multi-Participant Interactive Fiction*. 1994.

Castell, Suzanne de, and Jennifer Jenson, editors. *Worlds in Play: International Perspectives on Digital Games Research*. Peter Lang Inc., International Academic Publishers, 2007.

Cazden, C., et al. "A Pedagogy of Multiliteracies: Designing Social Futures." *Harvard Educational Review*, vol. 66, no. 1, 1996, pp. 60–92.

Charsky, Dennis. "From Edutainment to Serious Games: A Change in the Use of Game Characteristics." *Games and Culture*, vol. 5, no. 2, 2010, pp. 177–198.

Choontanom, Trina, and Bonnie Nardi. "13 Theorycrafting: The Art and Science of Using Numbers to Interpret the World." *Games, Learning, and Society: Learning and Meaning in the Digital Age*, 2012, p. 185.

Ciccoricco, David. *Reading Network Fiction*. University of Alabama Press, 2007.

Clark, J. Elizabeth. "The Digital Imperative: Making the Case for a 21st-Century Pedagogy." *Computers and Composition*, vol. 27, no. 1, Mar. 2010, pp. 27–35. *ScienceDirect*, doi:10.1016/j.compcom.2009.12.004.

Connors, Robert J. "Current-Traditional Rhetoric: Thirty Years of Writing with a Purpose." *Rhetoric Society Quarterly*, vol. 11, no. 4, 1981, pp. 208–221.

Cramer, Florian. "What Is 'Post-Digital'?" *Postdigital Aesthetics*, Springer, 2015, pp. 12–26.

Crowley, Sharon. *The Methodical Memory: Invention in Current-Traditional Rhetoric*. SIU Press, 2010.

Csikszentmihalyi, Mihaly. *Flow: The Psychology of Optimal Experience*. First Edition, Harper Perennial, 1991.

Cushman, Ellen, et al. "Why Teach Digital Writing?" *Kairos*, vol. 10, no. 8, 2005, http://eduscapes.com/hightech/tools/texts/digital_writing.pdf.

Dabbagh, Nada, and Anastasia Kitsantas. "Personal Learning Environments, Social Media, and Self-Regulated Learning: A Natural Formula for Connecting Formal and Informal Learning." *The Internet and Higher Education*, vol. 15, no. 1, 2012, pp. 3–8.

Davidson, Cathy N., and David Theo Goldberg. *The Future of Thinking: Learning Institutions in a Digital Age*. MIT Press, 2010.

Davidson, Drew, and Richard Lemarchand. "Uncharted 2: Among Thieves-How to Become a Hero." *Games, Learning, and Society: Learning and Meaning in the Digital Age*, 2012, pp. 75–107.

De Lucia, Andrea, et al. "Development and Evaluation of a Virtual Campus on Second Life: The Case of SecondDMI." *Computers & Education*, vol. 52, no. 1, 2009, pp. 220–233.

Desilets, Brendan. *Teaching and Learning with Interactive Fiction: Digital Storytelling for Students and Teachers*. Fourth edition, Brendan Desilets, 2016.

Donlan, Leah. "Exploring the Views of Students on the Use of Facebook in University Teaching and Learning." *Journal of Further and Higher Education*, vol. 38, no. 4, 2014, pp. 572–588.

Duncan, Doris G., and Casimir C. Barczyk. "Facebook in the University Classroom: Do Students Perceive That It Enhances Community of Practice and Sense of Community?" *International Journal of Business and Social Science*, vol. 4, no. 3, 2013.

Ede, Lisa S., and Andrea A. Lunsford. *Singular Texts/Plural Authors: Perspectives on Collaborative Writing*. SIU Press, 1990.

Einhorn, Susan. "Microworlds, Computational Thinking, and 21st Century Learning." *LCSI White Paper*, 2012.

Elbow, Peter. *Writing Without Teachers*. Oxford University Press, 1998.

Elbow, Peter, and Pat Belanoff. *Sharing and Responding*. McGraw-Hill, 2000.

Ensslin, Astrid. *Literary Gaming*. MIT Press, 2014.

Ensslin, Astrid, and Alice Bell. "' Click= Kill': Textual You in Ludic Digital Fiction." *StoryWorlds: A Journal of Narrative Studies*, vol. 4, no. 1, 2012, pp. 49–73.

Erstad, Ola. "Electracy as Empowerment Student Activities in Learning Environments Using Technology." *Young*, vol. 11, no. 1, Feb. 2003, pp. 11–28. *you.sagepub.com*, doi:10.1177/1103308803011001073.

Eskelinen, Markku. *Cybertext Poetics: The Critical Landscape of New Media Literary Theory*. Bloomsbury Publishing USA, 2012.

Fischer, Steven Roger. *History of Writing*. First Edition edition, Reaktion Books, 2004.

Freire, Paulo. *Pedagogy of the Oppressed*. Bloomsbury Publishing, 1970.

Friesen, Norm, and S. Lowe. "The Questionable Promise of Social Media for Education: Connective Learning and the Commercial Imperative." *Journal of Computer Assisted Learning*, vol. 28, no. 3, 2012, pp. 183–194.

Galloway, Alexander R. *Protocol: How Control Exists after Decentralization*. MIT press, 2004.

Gee, James Paul. "Are Video Games Good for Learning?" *Nordic Journal of Digital Literacy*, vol. 1, no. 03, 2006, pp. 172–183.

---. *Teaching, Learning, Literacy in Our High-Risk High-Tech World: A Framework for Becoming Human*. Teachers College Press, 2017.

---. *The Anti-Education Era: Creating Smarter Students through Digital Learning*. Palgrave Macmillan Trade, 2013.

Gee, James Paul, and Elisabeth Hayes. *Nurturing Affinity Spaces and Game-Based Learning*. Vol. 123, Cambridge University Press, 2012.

Gee, James Paul, and Elisabeth R. Hayes. *Language and Learning in the Digital Age*. 1st ed., Routledge, 2011.

Greenhow, Christine, et al. "Learning, Teaching, and Scholarship in a Digital Age Web 2.0 and Classroom Research: What Path Should We Take Now?" *Educational Researcher*, vol. 38, no. 4, 2009, pp. 246–259.

Haynes, Cynthia. "Artic Virgins: Élekcriture and the Semiotics of Circumpolar Icon(o)Graphé." *Cybertext Yearbook 2002-2003*, 2003.

Haynes, Cynthia A., and Jan Rune Holmevik. *High Wired: On the Design, Use, and Theory of Educational MOOs*. University of Michigan Press, 2001.

Haynes, Cynthia, and Jan Rune Holmevik. *Teleprompting Élekcriture*.

Hemmi, Akiko, et al. "The Appropriation and Repurposing of Social Technologies in Higher Education." *Journal of Computer Assisted Learning*, vol. 25, no. 1, 2009, pp. 19–30.

Hicks, Troy, et al. *Because Digital Writing Matters: Improving Student Writing in Online and Multimedia Environments*. John Wiley & Sons, 2010.

Holmevik, Jan Rune. *Inter/Vention: Free Play in the Age of Electracy*. MIT Press, 2012.

Holmevik, Jan Rune, and Cynthia Haynes. *Mooniversity: A Student's Guide to Online Learning*. Allyn & Bacon, Inc., 1999, http://dl.acm.org/citation.cfm?id=555582.

Howard, Rebecca Moore. *Collaborative Pedagogy*. pp. 54–70.

Isaías, Pedro, et al. "E-Learning Systems, Environments and Approaches: Theory and Implementation." *E-Learning Systems, Environments and Approaches*, edited by Pedro Isaías et al., Springer International Publishing, 2015, pp. 1–7. *link.springer.com*, http://link.springer.com/chapter/10.1007/978-3-319-05825-2_1.

Ito, Mizuko, et al. *Connected Learning: An Agenda for Research and Design*. BookBaby, 2013.

Itō, Mizuko. *Hanging out, Messing around, and Geeking out: Kids Living and Learning with New Media*. the MIT Press, 2010.

Jenkins, Henry, Ravi Purushotma, et al. *Confronting the Challenges of Participatory Culture: Media Education for the 21st Century*. Mit Press, 2009.

Jenkins, Henry. *Convergence Culture: Where Old and New Media Collide*. NYU press, 2006.

Jenkins, Henry, Mizuko Ito, et al. *Participatory Culture in a Networked Era: A Conversation on Youth, Learning, Commerce, and Politics*. 1 edition, Polity, 2015.

Jenkins, Henry, Sam Ford, et al. *Spreadable Media: Creating Value and Meaning in a Networked Culture*. NYU Press, 2018.

Jepson, Kevin. *More MOO Thoughts*. Aug. 2005, http://brn227.brown.wmich.edu/Barn/files/docs/More_MOO_Thoughts.pdf. EnCore List.

Kafai, Yasmin B., et al. *Connected Gaming: What Making Video Games Can Teach Us about Learning and Literacy*. Mit Press, 2016.

Kafai, Yasmin B., and Mitchel Resnick. *Constructionism in Practice: Designing, Thinking, and Learning in a Digital World*. Routledge, 1996.

Kemp, Jeremy, and Daniel Livingstone. "Putting a Second Life 'Metaverse' Skin on Learning Management Systems." *Proceedings of the Second Life Education Workshop at the Second Life Community Convention*, vol. 20, The University of Paisley CA, San Francisco, 2006, http://hibgroupbpr.pbworks.com/f/Second+Life.pdf#page=22.

Kennewell, Steve. "Using Affordances and Constraints to Evaluate the Use of Information and Communications Technology in Teaching and Learning." *Journal of Information Technology for Teacher Education*, vol. 10, no. 1–2, July 2001, pp. 101–16. *Taylor and Francis+NEJM*, doi:10.1080/14759390100200105.

Kerres, Michael, and Claudia De Witt. "A Didactical Framework for the Design of Blended Learning Arrangements." *Journal of Educational Media*, vol. 28, no. 2–3, Oct. 2003, pp. 101–13. *Taylor and Francis+NEJM*, doi:10.1080/1358165032000165653.

Kirkwood, Adrian. "E-learning: You Don't Always Get What You Hope For." *Technology, Pedagogy and Education*, vol. 18, no. 2, July 2009, pp. 107–21. *Taylor and Francis+NEJM*, doi:10.1080/14759390902992576.

Kirkwood, Adrian, and Linda Price. "Technology-Enhanced Learning and Teaching in Higher Education: What Is 'Enhanced' and How Do We Know? A Critical Literature Review." *Learning, Media and Technology*, vol. 39, no. 1, Jan. 2014, pp. 6–36. *Taylor and Francis+NEJM*, doi:10.1080/17439884.2013.770404.

Knobel, M., and D. Wilber. "Let's Talk 2.0." *Educational Leadership*, vol. 66, no. 6, 2009, pp. 20–24.

Koster, Raph. *Theory of Fun for Game Design*. 2 edition, O'Reilly Media, 2013.

Landow, George P. *Hypertext 3.0: Critical Theory and New Media in an Era of Globalization*. JHU Press, 2006.

Lassota Bauman, Marcy. "The Evolution of Internet Genres." *Computers and Composition*, vol. 16, no. 2, 1999, pp. 269–82. *ScienceDirect*, doi:10.1016/S8755-4615(99)00007-9.

Lastowka, Greg. "Minecraft as Web 2.0: Amateur Creativity & Digital Games." *Available at SSRN 1939241*, 2011, http://papers.ssrn.com/sol3/papers.cfm?abstract-id=1939241.

Lessig, Lawrence. *Free Culture: How Big Media Uses Technology and the Law to Lock down Culture and Control Creativity*. Penguin, 2004.

Lévy, Pierre. *Cyberculture*. Vol. 4, U of Minnesota Press, 2001.

Lévy, Pierre, and Robert Bonomo. *Collective Intelligence: Mankind's Emerging World in Cyberspace*. Perseus Publishing, 1999, http://dl.acm.org/citation.cfm?id=555232.

Lewis, Seth C. "The Tension Between Professional Control and Open Participation." *Information, Communication & Society*, vol. 15, no. 6, Aug. 2012, pp. 836–66. *Taylor and Francis+NEJM*, doi:10.1080/1369118X.2012.674150.

Lohnes, Sarah, and Charles Kinzer. "Questioning Assumptions about Students' Expectations for Technology in College Classrooms." *Innovate: Journal of Online Education*, vol. 3, no. 5, 2007, p. 2.

Loveless, Avril. "Technology, Pedagogy and Education: Reflections on the Accomplishment of What Teachers Know, Do and Believe in a Digital Age." *Technology, Pedagogy and Education*, vol. 20, no. 3, Oct. 2011, pp. 301–16. *Taylor and Francis+NEJM*, doi:10.1080/1475939X.2011.610931.

Luckin, Rosemary, et al. "Do Web 2.0 Tools Really Open the Door to Learning? Practices, Perceptions and Profiles of 11–16-year-old Students." *Learning, Media and Technology*, vol. 34, no. 2, June 2009, pp. 87–104. *Taylor and Francis+NEJM*, doi:10.1080/17439880902921949.

Magnussen, Rikke. "Games as a Platform for Situated Science Practice." *Worlds in Play*, Peter Lang, 2007.

McKenzie, Nathan. "Nuturing Lateral Leaps in Game Design." *Games, Learning, and Society: Learning and Meaning in the Digital Age*, 2012, p. 49.

Mcleod, Susan. *The Pedagogy of Writing Across the Curriculum*. pp. 149–64.

Meifert-Menhard, Felicitas. *Playing the Text, Performing the Future: Future Narratives in Print and Digiture*. Vol. 2, Walter de Gruyter, 2013.

Mercer, Neil, et al. "Methods for Studying the Processes of Interaction and Collaborative Activity in Computer-Based Educational Activities." *Technology, Pedagogy and Education*, vol. 13, no. 2, July 2004, pp. 195–212. *Taylor and Francis+NEJM*, doi:10.1080/14759390400200180.

Meyers, Eric M., et al. "Digital Literacy and Informal Learning Environments: An Introduction." *Learning, Media and Technology*, vol. 38, no. 4, Dec. 2013, pp. 355–67. *Taylor and Francis+NEJM*, doi:10.1080/17439884.2013.783597.

Montfort, Nick. "Interactive Fiction as Story, Game, Storygame, Novel, World, Literature, Puzzle, Problem, Riddle, and Machine." *First Person: New Media as Story, Game, and Performance*, 2004.

---. *Toward a Theory of Interactive Fiction*. December, 2003.

Nystrom, Robert. *Game Programming Patterns*. Genever Benning, 2014.

Page, Ruth, and Bronwen Thomas. *New Narratives: Stories and Storytelling in the Digital Age*. U of Nebraska Press, 2011.

Papert, Seymour. *A Word for Learning*. pp. 2–24.

---. *Mindstorms: Children, Computers, and Powerful Ideas*. Basic Books, Inc., 1980, http://dl.acm.org/citation.cfm?id=1095592.

---. *The Children's Machine: Rethinking School in the Age of the Computer*. Basic books, 1993.

Papert, Seymour, and Idit Harel. "Situating Constructionism." *Constructionism*, vol. 36, 1991, pp. 1–11.

Piaget, Jean. "Part I: Cognitive Development in Children: Piaget Development and Learning." *Journal of Research in Science Teaching*, vol. 2, no. 3, 1964, pp. 176–186.

---. "Piaget's Theory." *Carmichael's Manual of Child Psychology*, vol. 1, 1970.

---. *To Understand Is to Invent: The Future of Education*. 1973, http://philpapers.org/rec/PIATUI.

Powell, Barry B. *Writing - Theory and History of the Technology of Civilization*. 1 edition, Wiley-Blackwell, 2012.

Prensky, Marc R. *Teaching Digital Natives: Partnering for Real Learning*. Corwin Press, 2010.

RATAN, R. ABINDRA, and Ute Ritterfeld. "Classifying Serious Games." *Serious Games*, Routledge, 2009, pp. 32–46.

Reed, Aaron. *Creating Interactive Fiction with Inform 7*. Cengage Learning, 2010.

Resnick, Mitchel. "Edutainment? No Thanks. I Prefer Playful Learning." *Associazione Civita Report on Edutainment*, vol. 14, 2004, pp. 1–4.

Rheingold, Howard. *Smart Mobs*. Basic Books, 2003, http://www.cairn.info/article.php?ID_ARTICLE=SOC_079_0075.

Richardson, Will. *Blogs, Wikis, Podcasts, and Other Powerful Web Tools for Classrooms*. Third Edition, Corwin Press, 2010.

Rieber, Lloyd P. "Seriously Considering Play: Designing Interactive Learning Environments Based on the Blending of Microworlds, Simulations, and Games." *Educational Technology Research and Development*, vol. 44, no. 2, 1996, pp. 43–58.

Selber, Stuart. *Multiliteracies for a Digital Age*. 1st ed., Southern Illinois University Press, 2004.

Selwyn, Neil. "Web 2.0 Applications as Alternative Environments for Informal Learning-a Critical Review." *Paper for CERI-KERIS International Expert Meeting on ICT and Educational Performance*, 2007, pp. 16–17, http://www.oecd.org/edu/ceri/39458556.pdf.

Selwyn, Neil, and Eve Stirling. "Social Media and Education … Now the Dust Has Settled." *Learning, Media and Technology*, vol. 41, no. 1, Jan. 2016, pp. 1–5. *Taylor and Francis+NEJM*, doi:10.1080/17439884.2015.1115769.

Sheehy, Kieron, et al. *Virtual Worlds: Controversies at the Frontier of Education*. Nova Science Publishers, 2010.

Shor, Ira. *Empowering Education: Critical Teaching for Social Change*. University of Chicago Press, 2012.

Somekh, Bridget. "Taking the Sociological Imagination to School: An Analysis of the (Lack of) Impact of Information and Communication Technologies on Education

Systems." *Technology, Pedagogy and Education*, vol. 13, no. 2, July 2004, pp. 163–79. *Taylor and Francis+NEJM*, doi:10.1080/14759390400200178.

Squire, Kurt. "Designed Cultures." *Games, Learning, and Society: Learning and Meaning in the Digital Age*, 2012, pp. 3–31.

Starkey, Louise. "Evaluating Learning in the 21st Century: A Digital Age Learning Matrix." *Technology, Pedagogy and Education*, vol. 20, no. 1, Mar. 2011, pp. 19–39. *Taylor and Francis+NEJM*, doi:10.1080/1475939X.2011.554021.

Steinkuehler, Constance, et al. *Games, Learning, and Society: Learning and Meaning in the Digital Age*. Cambridge University Press, 2012.

Steinkuehler, Constance, and Yoonsin Oh. "Apprenticeship in Massively Multiplayer Online Games." *Games, Learning, and Society: Learning and Meaning in the Digital Age*, 2012, pp. 154–184.

Stevens, Duncan. "IF as Argument." *IF Theory Reader*, 2011, p. 101.

Tess, Paul A. "The Role of Social Media in Higher Education Classes (Real and Virtual)– A Literature Review." *Computers in Human Behavior*, vol. 29, no. 5, 2013, pp. A60–A68.

Tobin, Lad. *Process Pedagogy*. pp. 1–18.

Twine / An Open-Source Tool for Telling Interactive, Nonlinear Stories. https://twinery.org/. Accessed 25 Mar. 2018.

Ulmer, Gregory L. *Internet Invention: From Literacy to Electracy*. Longman, 2003.

Underwood, Jean, and Gayle Dillon. "Chasing Dreams and Recognising Realities: Teachers' Responses to ICT." *Technology, Pedagogy and Education*, vol. 20, no.

3, Oct. 2011, pp. 317–30. *Taylor and Francis+NEJM*, doi:10.1080/1475939X.2011.610932.

Van Eck, Richard. "Digital Game-Based Learning: It's Not Just the Digital Natives Who Are Restless." *EDUCAUSE Review*, vol. 41, no. 2, 2006, p. 16.

Vygotsky, L. S. *Mind in Society: The Development of Higher Psychological Processes*. Harvard University Press, 1980.

WarsChauer, Mark, and Paige Ware. "Learning, Change, and Power." *Handbook of Research on New Literacies*, 2008, pp. 215–239.

Yancey, Kathleen Blake. "Made Not Only in Words: Composition in a New Key." *College Composition and Communication*, vol. 56, no. 2, 2004, pp. 297–328. *JSTOR*, doi:10.2307/4140651.

---. *Writing in the 21st Century*. National Council of Teachers of English, 2009.

Young, Richard E. "Paradigms and Problems: Needed Research in Rhetorical Invention." *Research on Composing*, 1978, pp. 29–47.