AN INQUIRY INTO KNOWING, LEARNING, AND TEACHING ART THROUGH NEW AND SOCIAL MEDIA

by

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ABSTRACT

This dissertation is offered at a time when new and social media are becoming a significant part of how teens and adults relate, know, and learn in North America. New and social media are forming networked social spaces which are overlapping and permeating places of schooling and which need to be woven into learning and teaching. However, the deployment of new networked digital technologies is not enough; new conceptions of curricula and pedagogies are needed to address shifts in knowing and learning through new and social media. Responding to this, art educators have been calling for the incorporation of contemporary art practices into curricula and pedagogies, and articulating learning in relational and complex ways.

This exploratory design-based research study inquires into the intersection of these three strands: how knowing, learning, and teaching art are affected by new and social media; how an inquiry-based art curricula and pedagogy, as drawn from the practices of contemporary new media art and complexity thinking, may be theorized and enacted; and how art learning takes place at the individual and collective scales as it is enacted in curriculum, pedagogy, and social network space.

This study examines a designed and enacted curriculum and pedagogy in a social network space which involved participants from one secondary school visual arts department. Fifteen student participants, from grades 9 through 12, and 5 adults, including myself, inquired through art using new and social media. Questions arose during this inquiry, such as: Who and what is considered a knower and learner in a social network space? How does a dynamic system of collective ideas, resulting from artistic inquiry, shape and get shaped by the learning of individuals in a bounded collective? What and who teaches in such a collective? What roles do identity performance and construction play in participation and the learning of art online? All of these questions form an inquiry direction that seeks to interpret and represent possibilities for art education through new and social media.

TABLE OF CONTENTS

ABSTRACT.. ii
TABLE OF CONTENTS.. iii
LIST OF TABLES vii
LIST OF FIGURES viii
ACKNOWLEDGEMENTS x
DEDICATION xi
PREFACE xii
CHAPTER 1: INTRODUCTION 1
STATEMENT OF PROBLEM 1
RATIONALE 3
BACKGROUND....4
NEW AND SOCIAL MEDIA 4
PERCEPTIONS OF TEENS AND SCHOOLS 5
PARTICIPATORY CULTURE 6
CONTEMPORARY ART, ART EDUCATION, AND INQUIRY 7
CONSIDERING INDIVIDUAL AND COLLECTIVE LEARNING 8
ORGANIZATION OF DISSERTATION 10
BEGINNINGS 12
CHAPTER 2: CONTEMPORARY NEW MEDIA ART CURRICULA AND PEDAGOGIES 13
CONTEMPORARY ART AND ART EDUCATION 13
ART CURRICULA AND PEDAGOGIES AS A SPACE OF INQUIRY 15
NEW MEDIA AND ART EDUCATION....16
NEW MEDIA AND THE BODY 16
KNOWING 17
KNOWING IS EMBODIED 18
KNOWING ENACTS A VIRTUAL 19
KNOWLEDGE AND MEDIA 20
LEARNING THROUGH NEW MEDIA 21
NEW MEDIA ART 22
JEFFERY SHAW 23
EDUARDO KAC 25
COLLECTIVE LEARNING ENVIRONMENTS IN NEW MEDIA ART 27
LEARNING TO LOVE YOU MORE 28
NEW MEDIA ART PEDAGOGY AND CURRICULUM 30
A SPACE FOR COLLECTIVE INQUIRY 31
SUMMARY....31
CHAPTER 3: COMPLEXITY THINKING....34
COMPLEXITY....35
SYSTEMS THAT LEARN....35
TRANSPHENOMENA 36
TRANSFORMATION AND EMERGENCE....38
EMERGENCE 39
CONSIDERING CHARACTERISTICS AND CONDITIONS OF EMERGENCE 40
INTERACTIONS....41

INTERCONNECTIONS 42
HISTORY OF INTERACTIONS 43
NETWORKS 44
STRUCTURES OF NETWORK SCIENCE AND HISTORY 44
NETWORKS AND POWER 45
NETWORK STRUCTURES 46
NODE 46
LINKS 47
HUBS 47
DISTRIBUTED 47
CENTRALIZED 48
DECENTRALIZED 48
DYNAMIC NETWORK STRUCTURES 48
DYNAMICS OF A DECENTRALIZED NETWORK 49
SPACE, PLACE, IDENTITY, AND COMPLEX SYSTEMS 50
SPACE, PLACE, AND TIME 50
IDENTITY 51
NEW MEDIA AND IDENTITY 53
LANDSCAPING A PLACE OF POSSIBILITY 55
CONSTRAINTS: CAUSALITY IN A COMPLEX DYNAMIC SYSTEMS VIEW 55
TOPOLOGIES OF POSSIBILITY LANDSCAPES 57
CONSTRAINTS THAT ENABLE IN ART CURRICULA 58
ART TEACHER AS A CONSCIOUSNESS OF THE COLLECTIVE 60
SUMMARY 62
CHAPTER 4: DESIGN-BASED RESEARCH 63
WHY DESIGN-BASED RESEARCH? 63
DEFINING DESIGN-BASED RESEARCH IN THIS STUDY 64
HISTORIES OF DESIGN-BASED RESEARCH 65
ENACTMENTS OF DESIGN-BASED REARCH 66
DESIGN-BASED RESEARCH IN ART EDUCATION 67
EPISTEMOLOGICAL TENSIONS 68
RESPONDING TO THOSE TENSIONS 69
OVERVIEW OF PROCEDURES 71
INTERVENTIONIST 72
THEORY DRIVEN 72
PRAGMATIC 72
CONTEXTUAL 72
ITERATIVE 73
COLLABORATIVE 73
INTEGRATIVE 73
CURRICULUM AND PEDAGOGY DESIGN AND ITERATIVE ANALYSIS 74
SITES OF RESEARCH 76
SITES OF THE MATERIAL AND DIGITAL VIRTUAL 77
VANCOUVER 77
PINE SCHOOL DISTRICT 78
OAK SECONDARY 78
NEW AND SOCIAL MEDIA AT OAK SECONDARY 79
SCHOOL POLICY ON THE USE OF SOCIAL MEDIA 80
SOCIAL NETWORK SITE- NMSNAE 80

PARTICIPANT RECRUITMENT 83
TEACHER PARTICIPANTS 84
STUDENT PARTICIPANTS 85
ETHICAL CONSIDERATIONS 88
VISUAL METAPHORS, IDENTITY, AND CONFIDENTIALITY 90
DATA COLLECTION 91
INTERVIEW DATA 91
INSTANT MESSAGE (IM) CHAT AND EMAIL 92
IMAGE AND VIDEO DATA 92
TEXTUAL DATA 93
OBSERVATION NOTES AND REFLECTIONS 93
THINKING COMPLEXLY ABOUT DATA ANALYSIS 93
DATA ORGANIZATION, PRESENTATION, AND CODING 96
CODING AND ANALYZING THE DATA 96
SUMMARY 98
CHAPTER 5: NMSNAE CURRICULUM AND PEDAGOGY 99
NMSNAE- PRE PLANNING 100
RESPONDING TO MEDIA: EUPHORIA 101
EUPHORIA IN CANADA 102
PARTICIPANT RESPONSE TO EUPHORIA 102
PRE-ACTIVITY 104
WEEK 1 104
WEEK 1 ANALYSIS 115
WEEK 2 115
WEEK 2 ANALYSIS 124
WEEK 3 124
WEEK 3 ANALYSIS 131
WEEK 4 132
WEEK 4 ANALYSIS 135
WEEK 5 137
WEEK 5 ANALYSIS 143
WEEK 6 INTRODUCTION 144
WEEK 6 ANALYSIS 161
WEEK 7 165
WEEK 7 ANALYSIS 174
WEEK 8 175
WEEK 8 ANALYSIS 180
REVIEW 181
SUMMARY 184
CHAPTER: 6 LEARNING THROUGH NEW AND SOCIAL MEDIA 187
KNOWING AND LEARNING THROUGH NEW AND SOCIAL MEDIA 187
LEARNING THROUGH ENCOUNTERING DIFFERENCE 190
SHIFTING THE SPATIAL 192
LEARNING THROUGH DIALOG 193
REHEARSAL 195
AFFECT AND LEARNING THROUGH NEW MEDIA 196
DYNAMICS OF ATTENTION AND LEARNING THROUGH NEW AND SOCIAL MEDIA 197
TEACHING ART THROUGH NEW AND SOCIAL MEDIA 199

SUMMARY 201

CHAPTER 7: IDENTITY AND PARTICIPATION THROUGH NEW AND SOCIAL MEDIA 202
SPACE, PLACE, AND IDENTITY 202
PLACE AND IDENTITY IN ONLINE CONTEXTS 203
LEARNING, TEACHING, AND IDENTITY 203
IDENTITY, PARTICIPATION, AND LEARNING 204
CONSTRUCTING FLECKS OF IDENTITY 204
PSEUDONYMS AND PROFILE IMAGES 204
LANGUAGE 207
IMAGES 208
GENDER 209
DISABLING PARTICIPATION 211
RISK OF LINKING ONLINE AND OFFLINE IDENTITIES 211
CONSTRAINING PERSONAL STYLE AND INQUIRY 212
JOHN FREEMAN 213
EVENING OUT THE PLAYING FIELD 216
RESHAPING SOCIAL RELATIONS 217
AUTHENTIC FEEDBACK 219
RESHAPING EXPECTATIONS 220
SUMMARY 221

CHAPTER 8: VISUALIZING THE COLLECTIVE KNOWLEDGE SYSTEM 224
NEW METAPHORS FOR KNOWING AND LEARNING ART ONLINE 224
METHOD 227
INFOGRAPHICS 230
PROCESS 232
IDEA LINKS, VIEWS, AND RESPONSES 238
COLLECTIVE KNOWLEDGE SYSTEM 241
IDEA CATEGORIES 241
SUMMARY 248

CHAPTER 9: CONCLUSION 251
REFLECTION 252
CONSIDERATIONS OF CONSTRAINTS AND LIMITATIONS 254
IMPLICATIONS 255
KNOWING, LEARNING, AND TEACHING ART THROUGH NEW AND SOCIAL MEDIA 255
ARTICULATING CURRICULA AND PEDAGOGIES FOR NEW AND SOCIAL MEDIA 258
FUTURE DIRECTIONS FOR INQUIRY 260
CONCLUSION 261

REFERENCES 262

APPENDIXES 273
APPENDIX A: SAMPLE INTERVIEW QUESTIONS FOR SEMI-STRUCTURED INTERVIEWS 273
APPENDIX B: GETTING STARTED HANDOUT & YOUR RESPONSIBILITIES 276
APPENDIX C: PROFILE IMAGES AND PSEUDONYMS OF PARTICIPANTS. 278
APPENDIX D: CERTIFICATE OF APPROVAL 279

LIST OF TABLES

TABLE 8.1 Idea Categories..... 242

LIST OF FIGURES

FIGURE 2.1 Jeffery Shaw, Installation image from *Place: Ruhr*..... 24
FIGURE 2.2 Eduardo Kac, *Ornitorrinco* 1990..... 26
FIGURE 2.3 Eduardo Kac, *Teleporting an Unknown State* 1994/2004..... 27
FIGURE 2.4 Screenshot of *Learning to Love You More*, 2007..... 28
FIGURE 3.1 *Powers of 10*..... 36
FIGURE 3.2 Nested transphenomena and transdisciplinary discourses..... 37
FIGURE 4.1 New Media and Social Networking in Art Education (NMSNAE)..... 82
FIGURE 5.1 *A Fist Full of Dollars*..... 106
FIGURE 5.2 Sample from Haine Walker's early posts..... 107
FIGURE 5.3 *World in a Seed*..... 109
FIGURE 5.4 Dialogue About Opti's *World in a Seed*..... 110
FIGURE 5.5 Milo Fishie's Week 1 project..... 112
FIGURE 5.6 Dialogue about Milo Fishie's Week 1 project..... 113
FIGURE 5.7 Rick O'Shay's Week 1 response..... 114
FIGURE 5.8 *Music Juxtaposition*..... 117
FIGURE 5.9 Response to *Music Juxtaposition* 1..... 118
FIGURE 5.10 Response to *Music Juxtaposition* 2..... 119
FIGURE 5.11 *Gang*..... 120
FIGURE 5.12 *Unsustainable Happiness*..... 121
FIGURE 5.13 *Define Happiness*..... 122
FIGURE 5.14 *Unsustainable Relief*..... 123
FIGURE 5.15 *A Man A Plan*..... 125
FIGURE 5.16 Responses to *A Man A Plan*..... 126
FIGURE 5.17 *Duty*..... 127
FIGURE 5.18 *Mondays Are Red*..... 128
FIGURE 5.19 *The One Who Means The World To Me <3*..... 129
FIGURE 5.20 *Pastor*..... 130
FIGURE 5.21 *<3*..... 133
FIGURE 5.22 *Where I Get Lost*..... 134
FIGURE 5.23 *Generations*..... 136
FIGURE 5.24 Haine Walker's Dandelions..... 137
FIGURE 5.25 Week 5 project: Mango Jello..... 139
FIGURE 5.26 *Recharging*..... 140
FIGURE 5.27 *Music Reflects the Musician*..... 141
FIGURE 5.28 Week 5 project: Sophie Lee..... 142
FIGURE 5.29 *Water*..... 148
FIGURE 5.30 Mango Jello's response to Opti's prompt..... 149
FIGURE 5.31 stormy's response to Opti's prompt..... 150
FIGURE 5.32 Sophie's Week 6 response to Opti's prompt..... 151
FIGURE 5.33 *Take For Granted*..... 152
FIGURE 5.34 *Fix Me Please, Will You?*..... 153
FIGURE 5.35 Responses to stormy's Week 6 prompt..... 154
FIGURE 5.36 Response to Mango Jello's Week 6 prompt..... 155
FIGURE 5.37 *Abstraction Macro 2*..... 156

FIGURE 5.38 *Littering*..... 157
FIGURE 5.39 *Hidden Economy*..... 158
FIGURE 5.40 *Sparkling Inspiration*..... 159
FIGURE 5.41 *Profile Switch*..... 160
FIGURE 5.42 *Decay*..... 167
FIGURE 5.43 *A Warm Glow*..... 169
FIGURE 5.44 *Youth In Motion*..... 171
FIGURE 5.45 *Art Supplies*..... 171
FIGURE 5.46 *Take A Walk Through Nature*..... 172
FIGURE 5.47 *Other Worlds*..... 173
FIGURE 5.48 *A Week In Colour*..... 176
FIGURE 5.49 Untitled series..... 177
FIGURE 5.50 Untitled..... 178
FIGURE 5.51 *Circles Of Life*..... 179
FIGURE 8.1 *United States: Most Wanted Painting*..... 228
FIGURE 8.2 *Death and Taxes*..... 231
FIGURE 8.3 Tag cloud of dissertation text..... 232
FIGURE 8.4 Network map of idea links..... 235
FIGURE 8.5 Image views per participant..... 236
FIGURE 8.6 Weeks 5 And 6..... 237
FIGURE 8.7 Network map of Weeks 1 and 4 ideas..... 243
FIGURE 8.8 Network map of ideas, Week 8..... 244
FIGURE 8.9 Network map of total idea combinations..... 245
FIGURE 8.10 Network map of total views each idea received..... 246

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DEDICATION

Richard O’Connor (1945 - 2008)

PREFACE

On my way to the University of British Columbia in the summer of 2006, I was invited to join Facebook by my former students at Towson High, a secondary school at which I had previously taught. Facebook is described as a social media place and is more commonly known as a social networking service. It is primarily a space in which users create the content, as participants who produce the writing, images, and interactions through a web of relationships.

My former students had started a Facebook group of people who had attended my art classes at the school. I was surprised at how former students—many of whom knew each other, and many of whom did not—so readily self-organized into a community of artists mentoring each other and sharing. The group has since expanded to include current high school students, as well as university students from around the world.

As a high school art teacher, I attempted to enact a pedagogy that followed my students' interests and ideas. This meant co-constructing a place for students, and me, to participate in, with, and through–a place to explore ideas. Initially, I did not intend to study new and social media; however, I was compelled to follow my students into this new space. It is in this spirit of following the participants of this study, tracing their relations and descriptions, that I attempt to articulate the shifts in knowing, learning, and teaching enabled through new and social media.

CHAPTER 1: INTRODUCTION

This dissertation is offered at a time when new and social media are becoming a significant part of how teens and adults relate, know, and learn in North America. It is also a time when contemporary new media artists are using new digital technologies to create spaces for learning and participation. There have been calls to incorporate the practices and processes of contemporary art into our curricula and pedagogical practices in art education (Wilson, 2003). Additionally, there is an emerging need to articulate learning in relational and complex ways. Complexity thinking offers an opportunity for new understandings of learning, at different scales of interdependent phenomena: from individuals to collectives. These strands come together in the forming of this dissertation through an exploration of complex knowing, learning, and teaching contemporary artistic inquiry through new and social media.

The purpose of this dissertation is to re-present an exploratory design-based research inquiry into the intersection of these strands. The inquiry is manifested in an analysis and interpretation of learning enacted through an art curriculum and pedagogy that draws from contemporary new media art practice and complexity thinking. This study was situated in a social network space in a secondary school visual arts department. Drawing from the work of Gadamer's (1994) Truth and Method, Davis and Sumara (2006) proposed that research texts can both represent and present. In this sense, representation calls something to mind, while presentation opens up new interpretive possibilities. Utilizing this definition, I intend to create a text that re-presents these strands in order to offer the field of art education insights and openings for new possibilities about knowing, learning, and teaching artistic inquiry through new and social media.

STATEMENT OF PROBLEM

Duncum (1997), responding to Harvey (1989), called for art educators to respond to new times, "to acknowledge the importance of new media, and to devise curricula in partnership with students' use of it" (p. 74). As Duncum articulated, art education has a unique opportunity to incorporate students' use of new and social media into art curricula and pedagogies. Additionally, many art education scholars have called for art curricula and pedagogies that embody the types of inquiry that contemporary artists enact (Adams, 2005; Gude, 2004, 2007; McKay, 2008; Sullivan, 1993; Walker, 2001, 2003; Wilson, 2003, 2008a, 2008b). To articulate knowing and learning through contemporary

art-inspired curricula and pedagogies and to enhance understandings of learning and inquiring through art in new and social media, I propose turning to dynamic metaphors of dynamic interdependent systems. In this context, dynamic refers to the continual motion that characterizes a system of relationships. These relationships are bound together in a coherent yet open system which effects the character and quality of all of them. In other words, participants' actions both reflect and affect a system of relationships dynamically.

Traces of these ideas have been represented in many of the ecological understandings of art education (Blandy, Congdon, Krug, 1998; Garoian, 1998; Gradle, 2007, 2008; Graham, 2007). Many of these authors have suggested attending to the place of ecology and a dynamic interrelationship to the environment. I draw instead from Bowers's (1990) call for incorporating Gregory Bateson's (1972) metaphor of mind as an ecology to understand the dynamic interrelationships of ideas and learning through artistic inquiry. Similar to metaphors of ecology are those from complexity thinking (Davis, 2004). Thinking about art curricula and pedagogy as a networked, dynamic, and complex system has emerged as a way to understand the learning of art through new and social media (Sweeny, 2004, 2008).

I have employed an exploratory design-based research methodology to accomplish the goals of this research, which are (a) to better understand how knowing, learning, and teaching art are affected by new and social media; (b) to theorize and enact an inquiry-based art curricula and pedagogy, as drawn from the practices of contemporary new media art and complexity thinking; and (c) to articulate new understandings of learning art at the individual and collective scales as it is enacted in curriculum, pedagogy, and social network space. Design-based research is a way of designing, enacting, and researching educational innovations to effect local learning and to contribute to those theories of learning (Barab & Squire, 2004). In this dissertation I have used it to inquire into the intersection and implications of new and social media, contemporary new media art practice, and complexity thinking in art education. The following overarching question guides this research:

> What insights into knowing, learning, and teaching art can be offered from an inquiry-based art curricula and pedagogy, through new and social media, that draws from contemporary new media art and complexity thinking?

Additional elaborations of this question that emerged during my research are: Who and what is considered a “knower” and “learner” in a social network space? How does a dynamic system of collective ideas, resulting from artistic inquiry, shape and get shaped by the learning of individuals in a bounded collective? Who and what teaches in such a collective, and what roles do identity performance and construction play in participation and learning of art online? All of these questions form an inquiry direction that seeks to interpret and represent possibilities for art education.

RATIONALE

At the end of the largest ethnographic study of teens and new media to date, Mizuko Ito (2008), asked: “What would it mean to really exploit the potential of the learning opportunities available through online resources and networks?” (p. 3). There is a need to theorize, design, and research the learning opportunities of new digital technologies in the art classroom, with a curriculum and pedagogy that both complements and expands their possibilities (Duncum, 1997). There have been articles on the possibilities for new and social media in art classrooms (Buffington, 2008; Liao, 2008; Roland, 2005, 2008), and a small, but growing, body of research (Colman, 2004; Erickson, 2005; Lai & Ball, 2004; Springgay, 2005; Sweeny, 2008; Taylor, 1999) that directly addresses how art learning is affected, understood, and extended through them.

This study seeks not only to add to these discourses, but also to offer new perspectives and possibilities for theorizing and enacting new and social media in art education. This study also recognizes that merely deploying new technologies in art education is not enough. In a two-person arts-based autoethographic research project, Carpenter and Taylor (2003) used a process which involved hypertext to create links to content across the Web. They argued that learning through new media such as hypertext is not just about making Web sites and interacting online; it is also about “the manipulation and exploration of ideas” (p. 52). In this dissertation I propose that any use of new and social media into art classrooms must be coupled with curricula and pedagogies appropriate for the qualities embodied within such media. This research, then, is designed to address the concerns of how new and social media affects knowing, learning, and teaching; and what kinds of contemporary and complex curricula and pedagogies are possible through these spaces.

This study and representation will offer the field of art education new ways of thinking complexly about art curriculum and pedagogy through new and social media. It also

responds to a broader need to explore not only how learning is affected through new and social media in art, but also what curricular and pedagogical innovations are made possible by the use of these media.

BACKGROUND

This study's data collection and curriculum were completed in the spring of 2008 in an online social networking site, in conjunction with a secondary school's visual arts department that included 15 teens, four art teachers, and me. This dissertation is situated within a larger context of significant technological and cultural change around the use of new and social media. I will now describe some of the background in which this study is positioned, such as Web 2.0, teen use of new and social media, calls for contemporary art practice in art education, and complex ways of thinking about knowing and learning through art. This description will provide a sense of the historical moment that we are experiencing in relation to new and social media, and of why a dissertation like this is timely.

NEW AND SOCIAL MEDIA

New media is simply defined as digitally based computing technologies that extend the knowing body qualitatively different than old media (for a more an in-depth theorization see chapter two). I use it here as an umbrella term which includes social media. *Social media* is defined here as a form of new media that is directed toward creating and maintaining social relationships across time and space. Social networking sites like Facebook or Myspace can be considered a form of social media. I prefer the term social media over Web 2.0 because it is more closely suggestive of what these media do, rather than of marketing connotations.

Web 2.0 is a marketing phrase coined by Tim O'Reilly (2005) and denotes a shift in Internet computing by emphasizing the Web as a place for collaboration, sharing, and interaction rather than as a platform for presenting information. No longer is our experience on the World Wide Web just for buying books and shoes, reading the news, or looking up information. The Internet is now a place where users can create, distribute, and mashup content. This is supported through interfaces such as blogs, which are short for Web logs; wikis, online documents that can be edited by multiple users; and social networks, online spaces where users can create a profile, make contacts and links, and post and distribute content. It is a media ecology. Media ecologies are buttressing and interdependent media that support and integrate with each other dynamically, without

canceling each other out (McLuhan, 2005). Teens know and learn today through a media ecology supported by Internet-capable mobile phones, computers, social media (Facebook and Twitter), and so on.

According to a recent survey (Ipsos, 2008), more than 88% of Canadians between the ages of 12 and 17 regularly use the Internet to socialize, either through instant messaging or through social networking sites such as Facebook or MySpace. In the United States, 9- to 17-year-olds spend just as much time online as they do watching television, and 96% of those online are using a social media interface (de Boor & Halpern, 2007). Of teens using the Internet, more than half are creating and distributing new media content (Lenhart & Madden, 2005). This has been described in the term coined by Alvin Toffler (1970, 1980): *prosumers*, or producer/consumers. This comes as Internet access and digital cameras are becoming more prevalent in North America (CEA, 2006; DPReview, 2004). Mobile computing, with hardware that combines imaging technologies with Internet access, has placed new and social media into the pockets of teens. With the rapid manufacturing, integration, and distribution of digital lens-based technologies, video and photography have become almost as widely used as writing.

PERCEPTIONS OF TEENS AND SCHOOLS

How have schools adapted in response to this shift in technological and cultural practice? A majority of teens report that there is a significant disconnect between new technology and school (Levin & Arafeh, 2002). With print and broadcast media drawing attention to stories of teens using new media for ‘sexting,’ the sending of provocative sexual texts and photographs to peers (Ivey, Tucker, & Stepp, 2009) and the posting of violent school fights to YouTube (Thanawala, 2009), it comes as no surprise that school policy-makers are moving to constrain the use of new and social media in schools. Coupled with the seeming underuse of technology in the classroom (Cuban, Kirkpatrick, & Peck, 2001), schools and school policies have further driven a wedge between teens’ use of new and social media and learning in schools.

Compounding this is a perception that teens are technologically savvier than teachers. In Digital Natives, Digital Immigrants, Prensky (2001) argued that the idea that teens born into the “digital age” after 1990 are inherently more technologically savvy than are “immigrants” to this time period is pervasive among teachers. Teachers are often excited by new technologies; however, Hardy (1998) suggested that most cite a lack of confidence, stemming from a perception that they do not know as much as teens, as

prohibitive to incorporating it in into their curricula. Yet in a recent survey (Ipsos, 2008), 28% of Canadian teens reported that they felt they were experts at new technology and the Internet, while 24% reported that they did not feel skilled at all. The survey findings pointed towards a misperception about the role of new and social media in the lives of teens. The term “digital native” is misleading in that there is a built-in assumption that because teens might participate in new and social media they are inherently technologically savvy. Teens are not participating with, in, and through new and social media for the sake of using and learning new technologies; rather, it has evolved unquestionably into their new and networked public (boyd, 2008).

PARTICIPATORY CULTURE

Participation through and with social media is an opening for teens to relate with each other in new contexts not limited to school, home, or in commercial spaces like malls. Participation with new and social media is also not limited only to building social relationships. Social network participation for teens is described as friendship- or interest-driven (Ito, et al., 2008). Therefore, it is mostly used for maintaining relationships established in off-line environments. There is also the growing use of social media to explore and develop new knowledge around specific interests. This can include belonging and participating in specialized groups which may include (but is not limited to) visual arts such as anime and comic art, video editing, photography, creative writing, fandom groups around reality television shows, and other activities.

Engagement in such activities has been described as a belonging to a participatory culture (Jenkins, 2006). Jenkins described a participatory culture as one which involves restructuring of hierarchies and intergenerational interaction. It has also been described as having low barriers to artistic expression, civic engagement, and collaborative learning (Jenkins, Clinton, Purushotma, Robison, & Weigel, 2007). Participatory culture is where teens and adults interact online by sharing information, teaching and learning from each other around specific interests. Whether it is video editing or comic art, adults play a role in mentoring, teaching, and learning with teens. However, roles are not necessarily determined by age; rather, it is a fluid system of relationships based on need, available expertise, and who is a part of the community.

These shifting and fluid boundaries in interest-driven social networks challenge traditional notions of who is teacher and who is learner. Here we see that new and social media are characterized by latent potentials for engagement and learning. This

dissertation will argue that phenomena such as interest-driven social networks and the shifting identify roles of teachers and learners are important features to consider in the interpretation of this study and in the field of art education.

CONTEMPORARY ART, ART EDUCATION, AND INQUIRY

The incorporation of contemporary art in the art curriculum has become a significant focus for innovation in art education. This study's focus is not about engagement of students directly with artifacts of contemporary new media art practice; rather, its focus is on the intersections of new media art, curriculum, and pedagogy. Sara Wilson McKay (2008) stated, "postmodern contemporary art shares an important trait with co-constructivist pedagogy–the social process inherent in art and learning to be meaningful in our lives" (p. 71). She further described how artists' engagement with the social relations to create interventions and spaces for participation points to possibilities for art pedagogies and curricula. Looking to contemporary artists, who dually engage in the social spaces we inhabit and the social issues we encounter, provides directions for artistic inquiry and learning that are far more relevant and meaningful than are artifacts from another era (Wilson, 2003).

This study seeks to frame the art practices and inquiry in an art classroom as part of contemporary art contexts. The art curriculum has been conceptualized as a place for inquiry (Barney, 2009, Castro, 2004, 2007; Walker, 2001, 2003) to explore ideas of self in relation to personal, embodied interpretive frames in relation to others. Thought of in this way, what happens in an art learning environment is a part of the larger context of the contemporary art world (Hafeli, 2008). It is not unlike Adam's (2005) description of Room 13, a primary school art group in Scotland. Room 13 is a place for inquiry through contemporary art practice. Identities are remade into artist-teacher and artist-learner to challenge "the imposition of tightly governed curricula and regulated pedagogies" (Adams, 2005, p. 23). This becomes, as Wilson (2008a, 2008b) theorized, a third-space pedagogy. He described a third-space pedagogical site as a "life-changing space where new forms of hybrid visual cultural artifacts, production, and meaning arise through informal contacts among kids and adults" (Wilson, 2008a, p. 120). In many ways, this new and social media space embodies Wilson's theorization by providing a space for interaction across grades, with teachers who are practicing artists, to create new conceptualization for learning through art.

CONSIDERING INDIVIDUAL AND COLLECTIVE LEARNING

Where does a self begin and end? We are symbiotic organisms more closely tied to our environment than we ever thought, according to Humphries (2009). The boundary of what makes us a physiological identity is fuzzier than ever. This is also true for human consciousness, as Merlin Donald (2001) stated: “although we may have the feeling that we do our cognitive work in isolation, we do our most important intellectual work as connected members of cultural networks” (p. 298). Knowing can no longer be considered an isolated act, separate from society and culture. Learning is not an isolated phenomenon (Vygotsky & Cole, 1978). Yet, this is nothing new in what we have come to understand about the social nature of art and art-making (Hagaman, 1990; Kindler & Darras, 1998; Wilson, 2004; Wolf, 1993). However, this dissertation extends this understanding by examining the dynamics of knowing, learning, and teaching through new and social media. This understanding also forms a bridge between contemporary art practice construed as pedagogy.

Knowing identities are sensed to be singular, and yet can also be understood as part of a collective. The theoretical understandings of complex dynamic systems, with an underlying scale-free and decentralized network structure, begin to describe the dynamics between different levels of phenomena, from neurological to cultural to ecological. Perhaps under-theorized and mostly misunderstood in accounts of the social and cultural influences on learning are the dynamic characteristics of learning across scales. Rather than seeing learning as existing on one scale, complexity thinking frames learning as dynamic, where individuals and social relations, are co-specifying–in other words, each is shaping the other relationally. It is then a question of scale, of where our attention is drawn to and where we place and describe agency and power. Scale is an important concept to this dissertation. In this context, scale is meant to call to mind the position of an observer in relationship to a phenomenon. Scale is the relative extent of a system of relationships. For example, there is the scale of the individual in all his or her complexity. Then there is the scale of the classroom made up many individuals. Though we consider each bounded—a human body bounded by skin and a classroom bounded by walls and class roster—each system of relationships is porous, nested, and interdependent.

In art education, the use of *systems relations* to understand learning has been incorporated in ways to describe these interrelationships. These system understandings of nonlinear learning in the visual arts have challenged traditional notions of

developmental endpoints (Kindler, 1999; Kindler & Darras, 1998; Wolf & Perry, 1988). What this type of research contributed was a challenge to traditional ideas of developmental stages; it suggested that pictorial representation was more fluid as children are able to access multiple pictorial systems based on context. Broadening these understandings is the insight that systems are shaped by the educational, social, and cultural contexts in which learners are situated (Wilson, 2004).

This framework is reminiscent of systems views of creativity in art education (James, 1996, 1997). What complexity thinking provides is an expanded frame of systems relationships from which to consider thinking and acting across phenomena. In other words, it provides an understanding that addresses the nonlinear, inefficient, causal dynamics between individuals, collectives, societies, and ecosystems. Complexity thinking provides a metaphor for thinking of these systems as nested and scale-independent. *Nested* means that you need a whole web of interdependent systems, whose dynamic relationships give rise to the character of a particular ecosystem. Scale-independent means that there will always be a level of irreducible detail no matter what level of phenomena you look at. Simply, the dynamics used to describe a society cannot be collapsed or reduced to describe the actions of one particular individual. Complexity thinking offers a way to hold these understandings of dynamic phenomena in conversation.

The major contributions to this study that complexity thinking provides is an epistemological stance, as it is enacted through design-based research, that articulates a language to describe enactments of contemporary new media art as curricula and pedagogy. Most significantly, it articulates a way to understand the dynamics of learning at multiple scales, from individuals to collectives. On this last point, complexity thinking contributes to art education a way of both occasioning learning at multiple scales and understanding the dynamics involved in these scales. It addresses the questions, What is a learner and what is a teacher? It attends to how, in a social network space, a dynamic collective of interdependent ideas shapes and is shaped by the learning of the participants. Complexity thinking offers a way to think of curriculum and pedagogy as a *landscape of possibilities*, one where the identity of teacher and learner is fluid and exists at different scales. Simply, can the network of ideas in a classroom teach and learn as do individual students? It expands the bookends of learning from merely occurring at the level of individual or social and cultural to ecological and neurological, while embracing the dynamics between the scales of phenomena.

ORGANIZATION OF DISSERTATION

I have articulated a background of concerns and ideas around teen activity online, participatory cultures and learning, contemporary art pedagogy and curricula, and complexity thinking, in order to orient the inquiry of this dissertation. The following outlines and orients the reader to this dissertation.

The next chapter is a theorization of art curricula and pedagogies that complement artistic inquiry through new and social media. I begin by reviewing relevant research in art education that addresses learning through new and social media. This situates this dissertation's position on art curriculum and pedagogy through new and social media. From here I offer a close examination of the curricular and pedagogical possibilities that new media offer for knowing and learning through artistic inquiry. This begins with a theorization of what it means to know through new media. It frames how understandings of knowing and learning shift in contemporary new media art, and what this offers for thinking about art curriculum and pedagogy. Specifically, I conceptualize new media art as a curricular approach for artistic inquiry that extends knowing bodies. I begin with artist Jeffery Shaw and his installation work that extends the knowing body. Edwardo Kac and his work around telepresence are examined to explore ideas of agency across local contexts. I conclude this chapter with Miranda July and Harrell Fletcher's participatory online work Learning To Love You More as a possibility for art curriculum and pedagogy through new and social media.

The third chapter identifies themes of art curriculum and pedagogy as inspired by contemporary new media art, and elaborates them through complexity thinking. Complexity thinking stems from a tradition of complexity science and theory. It draws from the study of self-organizing learning (adaptive) systems, be it a swarm of bees, the human body, or an ecosystem, and enacts these understandings in practice (Davis & Sumara, 2006). Knowing and learning is framed through complexity understandings of emergence, dynamic interactions and interconnections, knowing and knowledge systems, decentralized networks, complex systems and identity, and constraints that enable. Constraints that enable are key to the conceptualization, design, and enactment of the art curriculum in this study. It is used as the theoretical frame to articulate the kind of artistic inquiry enacted in Learning To Love You More, the curriculum, and my pedagogy in this study. Through complexity thinking, a theorization of not only the art curriculum and pedagogy, but also the epistemology of this research's methodology, add a frame to understand learning through new and social media.

Building off of the theorization of art curricula and pedagogy, the fourth chapter addresses the methodology used in this study. An exploratory design-based research (DBR) methodology is used. DBR is a practice-based, interventionist, theory-driven methodology. I articulate a rationale for the utilization of DBR in this research. The beginnings of DBR are explored as a way to frame its multiple epistemologies and the conflicts it raises within a complexity thinking framework. DBR as a methodology is still contested as it straddles a number of research paradigms. Specifically, I will identify the post-positivist and interpretivist positions in DBR. To address this tension and offer to the growing body of research that uses DBR, I articulate where this research study sits in the epistemological spectrum. Data collection methods are presented. I also consider and present ethical issues that arose and their impacts on this research. I describe my engagement with the research site and participants—specifically, who the participants were, where they came from, what art experiences they already had, and why I chose this research site. A theorization of the analytical methods stemming from the traditions of phenomenology and hermeneutics is then presented and adapted to this enaction of DBR.

In Chapter 5, I present a description of the art curriculum. Using a DBR approach of rich description and narrative—participant artworks, dialogues, and interviews—I describe and analyze the unfolding iterative cycles of the inquiry-based art curriculum, pedagogies, and participant activity. Of specific interest to this DBR study are the interpretations of how the art curriculum theorized in Chapters 2 and 3 were enacted, and what insights into learning can be articulated. The remaining chapters interpret the dynamics of learning and participation at the scales of individuals and collectives.

Chapters 6 and 7 focus on the scale of individual learners while considering the dynamic interrelationships between the two scales. Chapter 6 specifically examines how participants described their experiences of learning through new and social media. Implications for learning art through new and social media will be explored. Drawing from previous theorization of identity and complex systems, Chapter 7 explores the role of identity in learning and participation through new and social media.

Chapter 8 specifically examines learning at the collective level through info-graphic visualizations. Of interest to this study are the interpretations of the knowledge system that formed. This chapter addresses the idea of decentralized network dynamics and its implications for art education, both online and offline. In Chapter 9, I conclude by

considering how this research affected learning locally, and how it advances theory in learning for the field of art education.

BEGINNINGS

As described in the Preface, the beginnings of this inquiry started with my former high school art students. It was their interests and ideas that shaped what happened in my art classroom. Yes, there were always prompts and questions in the beginning phases of study for my students. These asked them to attend to the world around them in new ways. However, as they explored their lives and collective experiences through art-making and inquiry, it was their ideas and interests that led the way. It is in this spirit that I theorize and enact this study.

CHAPTER 2: CONTEMPORARY NEW MEDIA ART CURRICULA AND PEDAGOGIES

The purpose of this chapter is to present a theorization of art curricula and pedagogies that complements artistic inquiry through new and social media. I want to return to the assertion of Carpenter and Taylor (2003) that it is not enough to deploy new media into an art classroom without considering the possibilities for inquiring through a new media art curriculum and pedagogy. What this means, in this dissertation, is theorizing art curricula and pedagogies that consider knowing and learning through new media, as well as the implications of this for teaching these technologies in art education. Space and place are also considered when addressing inquiry in art curriculum and pedagogy through new and social media. I use Wilson's (2003, 2008a, 2008b) third-space pedagogy as the starting point for theorizing a transitional space for inquiry through art. This understanding of a space for inquiry has been more fully developed through particular works of contemporary art as a space for relational aesthetics that opens through encounters with new media art (Bourriaud, 1998; Hansen, 2004).

I begin this chapter by articulating what is meant by *inquiry* in this dissertation. This leads to consideration of what spaces of inquiry, as art curriculum and pedagogy, could be. To do this, I provide a brief outline of new media work in art education in order to situate what this study has to offer for knowing, learning, and teaching art through new and social media. I then spend the second half of the chapter theorizing qualities of knowing and learning through new media. This provides a framework for developing understandings of knowing and learning through contemporary new media art and what this offers art curricula and pedagogies.

CONTEMPORARY ART AND ART EDUCATION

Contemporary art needs to be considered to advance art education and meet the evolving needs of students, and what it means to inquire through art in current times (Adams, 2005; Gude, 2004, 2007; McKay, 2008; Sullivan, 1993; Walker, 2001, 2003; Wilson, 2003, 2008a, 2008b). Inquiry in art education can no longer be structured around elements and principles from an era of art dating from last century (Gude, 2004). The problem with deriving the criteria for art inquiry from static objects of art (Barkan, 1966; Dobbs, 2004) is, as Olivia Gude (2007) argued, because they are derived from an "outmoded paradigm" that will not be meaningful to our students. Deriving understandings for art inquiry though objects representative of a time and experience

from another era does not resonate with the experiences of teens today. The experiences that are prompted by encounters of certain works of contemporary art suggest a possible alternative. The aesthetics of participation and relation (Bourriaud, 1998; Hansen, 2004) in certain approaches to contemporary art offers a vision of what is possible for art education curricula and pedagogies. We engage with certain works of contemporary art differently from how we have engaged with art historically; therefore, our art pedagogy should also shift. Although production of art will always be a critical component of art education, the purposes for production need to shift. I argue that artistic production needs to be thought of as a space for inquiry. It is a space in which those who inquire through art attend to their relational position in the varied scales of phenomena of the world: material, social, cultural, and ecological.

Inquiry in art education has been articulated in many ways. It has been described in prescriptive and systematic ways to produce original expressions and new forms of knowledge (Armstrong, 1986; Heid, 2008), or as critical inquiry into artworks (Lampert, 2006). Inquiry can be closely examining the processes artists engage with inquiry as sources for art curricula and pedagogy (Walker, 2001, 2003). Building somewhat on Walker's theories, inquiry is understood in this dissertation as a process of actively attending to, and seeking out, our relational position as an inquirer. What this means is attending to our subjective relations with and through the *more-than-human* world (Abram, 1996), while also considering those of the collective, cultural, and ecological. Our subjective and inter-subjective relations shape the world around us, creating an inter-objective relation. Inter-objectivity is both inter-subjective and objective in that our descriptions shape and are part of the world (Davis, 2004).

The root of the word inquiry comes from the Latin *inquirere*, meaning "seek". The roots of the word seek can be traced to the Latin *percipere*, meaning to "seize, understand". Inquiry is not a passive activity of looking in art, but an active process of engagement, construal, and action through movement, sensation, and affect. Engaging in and through the visual is a synesthetic process not limited to vision alone (Bal, 2003). In this dissertation it is treated as an active engagement with the relational, through movement, affect, and sensation, which crosses all scales of phenomena, from the material to the ecological. Inquiry, seeking as a process of knowing, is not just looking and finding–it also influences how the world is ordered (Maturana & Varela, 1992).

ART CURRICULA AND PEDAGOGIES AS A SPACE OF INQUIRY

Further, art curricula and pedagogies are conceptualized here as spaces for inquiry (Barney, 2009; Castro, 2004, 2007), to explore and construe embodied interpretive possibilities in relation to collective ones. This is similar to Wilson's (2003, 2008a, 2008b) description of a third-space pedagogy. Wilson (2008a) described a third pedagogical site as between

> the first pedagogical site (the site where kids, individually and collectively, make art and visual culture on their own with little or no assistance from adults) and the second site (our school, museum and other arts institution classrooms where we instruct students in how to make and interpret art and visual culture). (p. 119)

Wilson related a story of an art teacher in the UK as an illustration for a third-space pedagogy. In this classroom account, the teacher created a place that was not what would be considered a "normal" art classroom. Wilson described his art classroom as divided into two sections. One section contained what could be normally expected in an art classroom: desks, chairs, and so on. The other section was constructed as a living room/museum filled with artifacts collected by the art teacher. Wilson's analysis of accounts from students who experienced this classroom led to an understanding that it was the living room/museum space that was the most influential for the former students. Wilson (2008a) claimed that the power of this classroom was derived from the fact that instruction "took place at the margins of normal schooling" (p. 125). It functioned as a transitional space for students, between cultures and social class. I adapt Winnicott's (2005) ideas of transitional phenomena and objects to transitional spaces, which both reference the familiar and evoke new experience. This new experience opens up new interpretive possibilities (Ellsworth, 2004). This can also be said to be a quality of learning (a point I will address further, below). One of the reasons this dissertation's inquiry addresses the space and place of new and social media in schools is because such an inquiry has the potential to provide a space like that described by Wilson, Winnicott, and Ellsworth.

Art curricula and pedagogies are broadly theorized here as a space for inquiry into the relational, between what has been experienced as known and what will be known. The relational is defined here as the way in which people, ideas, and contexts are connected. This understanding of space, which is presented in metaphoric terms as "landscape" in Chapter 3, is a participatory place, where teacher and student inquire into the relationally

rich phenomena of the more-than-human world. It is a transformational space for knowing and learning through art, and a concept that I also develop later in this chapter. I now move to theorize about what new media broadly does in terms of knowing and learning to better articulate engagements with contemporary new media art as inspiration for art curricula and pedagogies.

NEW MEDIA AND ART EDUCATION

New media and its role in contemporary art have taken on many definitions. On the surface, *new media* has come to be defined by new technologies, devices, and software applications. Conceptualized here, the role of new media in contemporary art has become an opportunity to remake and redefine relations between knowing bodies (Hansen, 2004).

In art education, new media art production is a way of critically engaging with visual culture (Darts, 2007). Additionally, there are a number of emerging threads of Internet-centric new media research that are specific to art education. Among these are the following: engagement with new media has been conceptualized as appreciating and criticizing net.art (Colman, 2005); creating interactive social and ecological justice Web sites (Julian, 1996; Krug, 1997); hypertext, hyper-aesthetics, and critical pedagogy (Taylor, 2000, 2004; Taylor & Carpenter, 2002); student assessment (Dorn & Sabol, 2006); collaborative virtual museums (Keifer-Boyd, 1997); simulation and visual culture in networked society (Sweeny, 2004); cyborg and prosthetic resistance pedagogy (Garoian & Gaudelius, 2004); and gaming (Keifer-Boyd, 2005).

I position this dissertation in new media art education research as an inquiry into curricula and pedagogies through new and social media. This dissertation extends and elaborates several key ideas from Springgay's (2005) theorization of knowing bodies through the digital virtual. She stated that digital "environments thus shape an important aspect of embodiment and bodied encounters, creating proximinal encounters where knowledge between bodies is produced" (Springgay, 2005, p. 47). New and social media shift relations between knowing bodies in qualitatively different ways.

NEW MEDIA AND THE BODY

The body—its movements, sensations, and affects—are significant here because it offers a frame of reference that is particularly applicable to knowing, learning, and teaching art through new media (Hansen, 2004; Massumi, 2002; Munster, 2006). In the

next sections I expand this idea of the body's relation to new media, and what it means for theorizing knowing and learning in art.

In Taylor's (2009) review of SecondLife.com, there is an implicit, celebratory tone to "leaving" the body in order to engage in art (education) online. Using a word like "liberating" to describe the experience of Second Life suggests that engaging with Second Life is to be set free. Free from what? Free from being in a body? A desire to leave the body, by entering into a "hyper-mediated reality" (Baudrillard, 1995), comes from some place and from some time. Take the term *cyberspace* as an example. It was coined by author William Gibson (1984) in his novel, *Neuromancer*; Gibson presents an engagement with new media as explicitly cleaved from the body. Cyberspace's antithesis, also coined in the same novel, is *meatspace*, and refers to the physical world. The word meatspace alludes to a messy, non-transcendent form of the body, something to be consumed or that will rot. Gibson tapped into a particular ideal of transcending the messiness of the body specific to the computer programming culture of the 1980s (Sofia, 2003). This has shaped both our understanding of cyberspace and our cultural understandings of the body in relation to new media. From popular "virtual reality" technologies, with special rooms, goggles, and suits; to online multi-player role-playing games and spaces like Second Life; all present a tacit promise of leaving a meatspace for a transcendent cyberspace.

I now present an epistemology of knowing, and how knowing is understood in this dissertation. This is especially important as I loop back into theorizing about knowing and learning through new media and its implications for an art curricula and pedagogy, and about not wanting to leave the body, but to know through, among, and in relation to a collective body.

KNOWING

> Art education, in all its various forms, is not only the practice of coming to know about art, but also the study of the character of this knowledge and the ways in which we come to know it. Research and theory in art education involve investigations into the natures and origins of art knowledge. (Freedman, 2005, p. 99)

What follows is a theorization about the qualities and character of knowing through art, particularly art inquiry through new and social media. Knowing, as it is understood here, is an affective/effective action between prior actualities and possible actualities. Actualities are nouns and come from the Latin roots of *actualitas*, from *actualis*, meaning "active", "practical". This suggests that an actuality is never fixed or static. Rather, it is remade in action, between prior and possible. Words associated with the verb form of *knowing* are related to awareness. Be aware, be conscious, be informed, notice, see, sense, recognize: all of these suggest that knowing is a process that is a sensing-perceiving recognition of being in and a part of a world. Our senses, perceptions, and understandings reference and are rooted in the body. Knowing is not a disembodied experience through new and social media; rather, it is qualitatively different. Any discussion of knowing, especially through new and social media, implicates the body.

KNOWING IS EMBODIED

Knowing is rooted in our interpretations and enactments of embodied, prior actualities. This means that to be able to know, a reference needs to be made from an embodied history of prior experiences. Our language, metaphors, and visual representations of knowing make reference to the body to make sense of our perceptions (Lakoff & Johnson, 1999). In the simple phrase "look at that over there," we reference our body by demarcating the distance between here (the body) and over there (away from here, or the body). Knowing is a body that can have effective action (Maturana & Varela, 1992). Varela, Thompson, and Rosch (1991) stated that knowing is the "enactment or bringing forth of meaning from a background of understanding" (p. 149). They continued: "(1) perception consists in perceptually guided action and (2) cognitive structures emerge from the recurrent sensorimotor patterns that enable action to be perceptually guided" (p. 173).

Spinoza's (2006) 17th century ideas coupled with Bergson's (2007) early 20th century ideas on the knowing body, can be seen as a precursors to the work of Maturana and Varela (1992), Hansen (2004), and Massumi (2002). Spinoza developed a concurrent and counter-understanding of the mind/body divide articulated by the 17th century writings of Rene Descartes (2007). Spinoza's *Ethics* (2006) described the mind and body as linked to prior and possible actualities—qualitatively different, yet ontologically similar. Encounters with possible actualities prompt an affect or an impingement on the sensing body, which results in creating an idea of an affect. It is a flow that moves from prior actualities to possible actualities, hinging on the sensing and affective body.

Movement of the body creates a space where future and past meet, folding affective sensation back into the body (Bergson, 2007).

For example, a drawing that uses perspective gives an illusion of a three-dimensional space. The illusion of three-dimensional space is achieved through a potentiality of a body moving through that representation of space. Without prior sensation of movement through a space, a viewer would not be able to understand perspective as a space (Merleau-Ponty, 1962). Take the popular online environment Second Life as another example of understanding knowing as embodied. Representations of bodies constructed in online environments reference embodied actualities to create possible actualities, commonly referred to as *virtual*. Understanding how to travel through a virtual space like Second Life references the sensation and affect of an actual body moving through an embodied material space.

Returning to recognition and identification as the roots of the word *knowing*, where do our backgrounds of understanding or actualities reside? This is where popular metaphors of knowledge come from; ideas of knowledge being stored in filing cabinets, boxes, machines or computers suggest that knowledge is quantifiable, static, and object-like, easily transferred, stored, and gathered. In fact, our backgrounds of understanding, and our prior actualities, are not “stored” in stasis; rather, they reside in our embodied enactments into possible actualities.

KNOWING ENACTS A VIRTUAL

Knowing, in relation to ourselves and through movement, is an act of construing a possible actuality, while referencing and shaping prior actualities through perceptually guided action. Massumi (2002) stated, “perceptions are possible actions” (p. 91), which means that perceptions are folded from prior actualities into a possibility. Perception is an action, a quality of conscious consideration of a space of possible action. Perception is not an exclusively interior or a subjective vision. We do not solely project a world onto a possible actuality; rather, possible actualities are co-specified through perception, prior actualities in a space of knowing (Varela, et. al., 1991). The folding of perception into a possible actual can also be understood as virtuality.

We are constantly creating actualities that are both prior actualities and through movement, affect, sensation, and perception, virtualities. They fold and double back through an affective, sensing body, moving from actual to virtual to actual, recursively.

The virtual is a space of possible action. It is something that cannot be felt or understood as a prior actuality because it is the space in which actualities emerge.

KNOWLEDGE AND MEDIA

Through the technologies of writing and language, culture has been able to represent enacted knowledge. Giving form to knowing, onto, into, or through, a media form, expands conscious attention (Olson, 1994; Ong, 1982) of a knower to engage an expanded range of prior and possible actualities. It does not supplant embodied prior actualities; rather, it acts as a reference to the fine-grained qualities of prior actualities. Here, I address representation as the presence of a perceived possible actuality, both presenting and pointing towards prior and possible actualities (Gadamer, 2004). Bergson (2007) argued that representation "is there, but always virtual being neutralized, at the very moment when it might become actual, by the obligation to continue itself and to lose itself in something else" (p. 28). Our representations of prior actualities are never actualities in and of themselves; they only point towards possible actualities. This is not to say that images and text do not exist: in fact they are objects and forces in this world, forming a space of possible action from encounters with them (Mitchell, 2005). Bergson (2007) continued:

> the virtual image evolves towards the virtual sensation, and the virtual sensation towards real movement: this movement, in realizing itself, realizes both the sensation of which it might have been the natural continuation, and the image which has tried to embody itself in the sensation. (p. 169)

Representations of knowing, prior and possible actualities, in media form get us closer to considering the question of what new media does that is different from "old" media. Tracing the roots of the singular *medium* to the Latin, literally meaning "middle" or "medius" to "media", a 19th century shortening of the modern Latin *tunica* or *membrana*, means media functions as an in-between. This in-between plays a significant role between knowers. Knowledge is not fixed, as static, in a media form. And, it should be considered, knowledge is transformed by the medium through which it is represented (McLuhan & Fiore, 2001). Media is an in-between, where readers construe different interpretive frames from encounters with mediated knowledge (Barthes, 1977). These representations of knowing as knowledge points towards interpretive possibilities of the encounter with a possible actuality. It is this in-between space, where knowing is representation in a form to be remade in an encounter with a knower, where media operates.

“New” in *new media* is not often considered in its relationship to the word *media*. The Oxford English Dictionary (New) definition first states *new* as “not existing before; made, introduced, or discovered recently or now for the first time” (¶ 1). New is also defined as “already existing but seen, experienced, or acquired recently or now for the first time.” The third definition of new is “just beginning and regarded as better than what went before” (¶ 2). The first and third definitions describe popular conceptions of new media either as a new technology or as something that was better than before. Granted, these popular conceptions shape our cultural attitudes towards new media; however, when describing the *new* in new media, the emphasis here is on the second definition. It is a description of relation to a knowing body, in movement and through affect in knowing, that is different. The new, therefore, in new media is a qualitatively different set of relations, sensations, and affects of knowing.

New media then, expands a space of possible action by placing the body more explicitly into a space of possible actualities (Hansen, 2004). What new media does in knowing is to expand the space of the possible, between the virtual and actual, by implicating the dynamic and affective body more, not less. It is a space of active and affective participation, where a knower can construe a virtuality more actively than he or she can in encounters with “old” media. The difference is not in kind, but in degree of affect and movement.

LEARNING THROUGH NEW MEDIA

Knowing is understood as embodied. Our metaphors, language, and perception are rooted in our embodied understandings and experiences (Lakoff & Johnson, 1999). Having a sensing, affective body that can have effective action in an environment is knowing (Maturana & Varela, 1992). With this understanding of knowing, we can say that learning is both behavioral and physical—which in biological terms is structural change (Davis & Sumara, 2006). Learning is the ability to adapt to new and diverse phenomena and environments in order to remain viable. Learners can only recognize what their perceptual and knowing structures are able to; this means that learners in their interactions with an environment would have to, in some way, embody the ability to interact with an environment. In other words, learning involves an interpretive framing of embodied experience. Interpretive frames guide our knowing action in the world. We could say that when our interpretive frames are reshaped, we have learned, and the knowing we enact qualitatively changes. It would be misleading to assume that the

learner changes in a static environment and that changes are only at play in the learner. Rather, the learner and their environment are co-specifying (Varela et al., 1991).

Ellsworth (2004) put particular emphasis on the *learning self*, how it is a *thing in the making*, especially in encounters with media. The learning self, according to Ellsworth, is based on the universal that we all have particular bodies. She stated (2004): “Everything we ‘know,’ everything that is ‘tellable,’ emerges out of the time and place of this embodied movement/sensation—which is also a time and place of self-dissolution” (p. 167). Dissolution, in this context, means a moment when the binary of self/other are reshaped. What media, art, and architecture do, according to Ellsworth, is create a space of dissolution in which the “I” re-emerges, changed through the experience. The binary of self/other is reshaped; the contours of the interpretive framing of embodied prior actualities into possible actualities are reshaped.

Encounters with art and images do not contain answers and Ellsworth stressed that art is neither education nor an artwork pedagogy, in and of itself. Rather, media, art, and architecture occasion an “interval for you to fall outside of what we already know” (Ellsworth, 2004, p. 162). Those intervals are indeterminate, shifting, and contingent to embodied experience and context. New media art attends to this interval, specifically positioning the body as the site of indetermination or self-dissolution and the subsequent re-framing that emerges. In this study, knowers’ embodied interpretive framing was extended and reshaped through encounters with each other’s interpretive framing as represented through each other’s images and texts. Encounters with images create associations that in many cases are as significant as those with the social (Latour, 2005; Mitchell, 2005). We can never fully know what it means to experience the world as someone else, either through their words or images, but we can come to know something altogether different, yet just as powerful, in terms of how our interpretive framing changes as a result with these encounters.

NEW MEDIA ART

Rather than adhering to a strict modernist ideal of an artwork coming to represent the whole of an artist’s intent, contemporary art, and particularly new media art, is making apparent its incompleteness by enacting a space of virtuality through encounters with a knowing body. The new media work of art creates an incomplete space, one of participation and relation, through the creation of a possible actuality. In Benjamin’s The Work of Art in the Age of Mechanical Reproduction (2008), he described the decay of the

aura of the artwork, as an autonomous bearer of truth or universal meaning, as a result of the nature of mechanical reproduction. This has been described as the post-medium condition (Hansen, 2004). In new media cultural studies, the post-medium condition is characterized as a convergence of digital information in which data need not be differentiated into concrete media classifications. It is where information, through images, text, and video, can flow through interfaces and devices, perhaps converging together into one experience. Manovich (2001) described the post-medium condition as aesthetic experience that is not necessarily limited by the constraints of human perception. It is a condition where code and interface somehow transcend the body; however, as I have argued, the post-medium that Manovich described does nothing less than implicate the participation of the body in the work of art. Hansen (2004) countered Manovich's rationalization of the post-medium by stating that the body is always implicated in encounters with new media.

New media art has been broadly characterized as having qualities such as: containing an interface, interactive, virtual, multi-modal, and immersive (Carter & Geczy, 2006). Both Ellsworth (2004) and Hansen (2004) theorized that what new media does is place the sensing and affective body into a more pronounced framing of a virtuality. The interpretive possibilities in the space of the virtual that guides possible action in reference from a prior actuality is a reshaping of interpretive frames from which to create a new space for knowing and learning. New media art and its incompleteness through interface, immersion, relation, and participation is a space for a more pronounced and active embodiment and actualization of a virtuality, which subsequently characterize its potentials as a knowing and learning space. In the following discussion, I will highlight four works by artists using new media to give an account of how they are engaging with the technological and cultural possibilities of new media and what that can offer to art education. I have chosen contemporary artworks to illustrate possible designs for knowing and learning spaces.

JEFFERY SHAW

Mark Hansen (2004) used the work of artist Jeffery Shaw (Figure 2.1) extensively to illustrate his theorization of new media art as creating a space that explicitly expands the perceptually guided action of viewer/participant. In the artwork *Place: Ruhr*, Shaw created an interface where the viewer/participant is placed in the center of a circular projection screen. The platform stood on by the viewer rotates and allows the viewer to control his or her point of view. Also on the platform are three projectors that show areas

Figure 2.1. Jeffery Shaw, Installation image from *Place: Ruhr*, (Shaw, 2008).

of a defunct industrial site in Germany. The participant has control of his or her own movement, rotating the projection around to reveal new scenes. The participant who selects scenes to display within the cylinder also controls the projections of these scenes. Additionally, a microphone on top of the control interface picks up any sound the viewer makes causing a projection of words, which correspond to the sounds made, onto the screen. The knowing body is extended through movement, affect, and sensation. Hansen (2004) stated that Shaw's work illustrated

> that the virtual is a quality of human (and, more generally, organic) life and can only erroneously be equated with technology. Far from being a synonym of the digital, the virtual must be understood as that capacity, so fundamental to human existence, to be in excess of one's actual state (p. 50-51).

Excess of one's state is a space of possibility. New media art is not just the deployment of new technologies; rather, it calls into question the ontological relationship of viewer and image to become participant and space. Attention to embodied experience is a feature of new media art that is important to this curriculum and pedagogy. New media

art occasions an interval or space in which the body's range of indetermination or self-dissolution shifts, moves, and reconstitutes into something qualitatively different. It is a reshaping of the contours of an enacted interpretive frame. The deliberate participatory and interactive quality of new media art, in which the body's movement and action is registered and responded to by the work of art is what distinguishes it from more traditional media artworks. I turn now to exploring the expanding role of the body in new media art by describing artists who occasion and extend a knowing body in coordination with other knowing bodies. This points to possibilities for art curricula and pedagogy through new and social media.

EDUARDO KAC

Artist Eduardo Kac's work explores the body's relation to space via works that engage through an experience of telepresence. Telepresence, by its technical definition, is the ability, through communications technology, to remotely control a device or object. It also carries a meaning of a sensation of being elsewhere, to have an affective response to a space that is not immediately local. *Ornitorrinco*, which is Brazilian Portuguese for platypus, is a robotic device that Kac constructed with Edward Bennett (Figure 2.2). Through the artwork, a viewer/participant extends perceptions from a local space, through an interface that displays video stills, into another space, often a gallery in another city. The video stills are from a camera mounted on the robot and are sent at regular intervals. Ornitorrinco's movements in the distant gallery are controlled through a touch-tone telephone keypad. Each numerical value represents a direction that the robot can move throughout the gallery space. The viewer/participant, through limited senses, is extended into a more expanded space of action or knowing. Kac (2007a), reflecting on the social implications of telepresence, stated:

> it reflects the cultural conditions of late-twentieth century society in respect to its attempt of eliminating the consequences of geographic distance in human affairs. Ours is a society that can save lives or massacre other societies from afar. (¶ 3)

Extending a sensing, affective body through telecommunications marks a shift in media interfaces. The body and its movements play a more pronounced role in the experience of the art work. Now, the body's range of possibilities is extended through new media, across space, place, and time. Through works like Kac's *Teleporting an Unknown State* (Figure 2.3), a viewer/participant has an extended type of agency across spaces and places outside of local embodied action. In *Teleporting*, Kac uses the Internet to enable

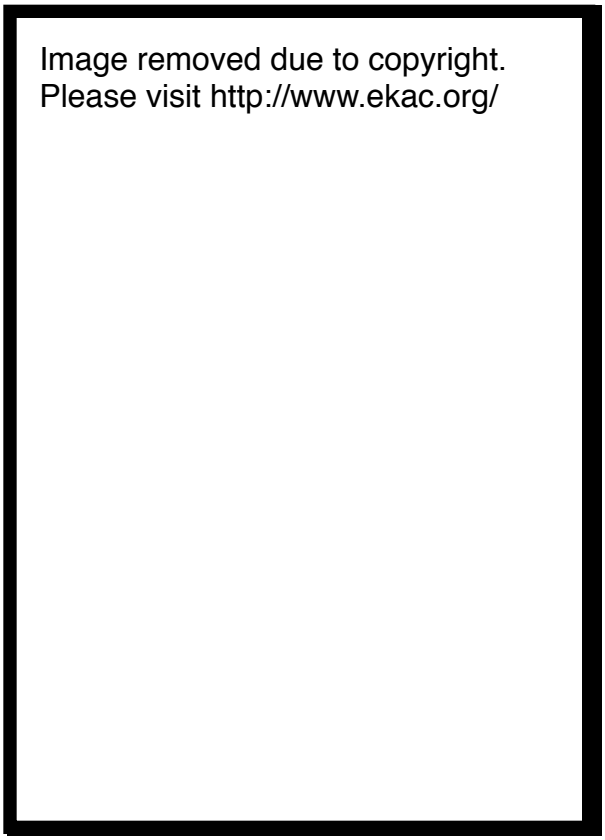


Figure 2.2. Eduardo Kac, *Ornitorrinco* 1990, (Kac, 2007b)

telepresence through the act of viewing and navigating (clicking and scrolling) online. In this work, Kac set up a pedestal with potting soil and a seed in a darkened gallery space. In the latest iteration of this project the pedestal was set up in a gallery in Slovenia. On the Web interface, surrounding the image of the plant, were live Web camera feeds from cities all over the world. Internet-based viewer/participants could click on a Web camera feed where it was daylight (hopefully for the sake of the seed) and that Web camera's feed image would be projected onto the plant. The projector bulb acted as a grow lamp for the plant. The act of viewing supported the growth of the seedling, as did the choice of which Web camera feed to use in the projection on the plant.

What Kac does in this work is make explicit that viewing is an act of participation. Clicking, navigating, and scrolling on and through the Internet is an affective movement, one where seemingly innocuous bodily movements and framing creates a possible actuality and virtuality both individually and collectively, locally and non-locally. Kac also conceptualizes a new possibility for collective action in online environments to create

new senses of action, agency, and knowing. This work also points towards a possible alternative to the perceived self-interested activities of interaction online.

Figure 2.3. Eduardo Kac, *Teleporting an Unknown State* 1994/2004. (Kac, 2007b)

COLLECTIVE LEARNING ENVIRONMENTS IN NEW MEDIA ART

> The role of the artist in interactive art is not to encode messages unidirectionally but to define the parameters of the open-ended context in which experiences will unfold. (Kac, 2007c, ¶ 97.)

Contemporary new media artists are employing new media as a way of building social interruption, relations, and spaces of participation. In the past 100 years, early efforts in participation-based art, from the Dadaist spontaneous parades/performances in the

1920s to “happenings” in the 1960s, sought to coordinate social interaction as the “medium” used in the work of art (Bishop, 2006). Social spaces of interaction are a “medium” in which artists imagine new possibilities outside of “normal” social interactions. Here Bourriard (2006) articulated that art “is a site that produces a specific sociability” (p. 161). Drawing from Bourriard (1998), it can be argued that the kinds of art that are relational, especially new media art, function as an “interstice,” or an intervening or transitional space. It is a space for a resetting and reshaping of social relations outside of the norms entrenched in the recursive patterns of culture.

LEARNING TO LOVE YOU MORE

In 2002, artists Miranda July and Harrell Fletcher created a participatory Web site entitled *Learning to Love You More*; its content was to be generated by users (Figure 2.4).

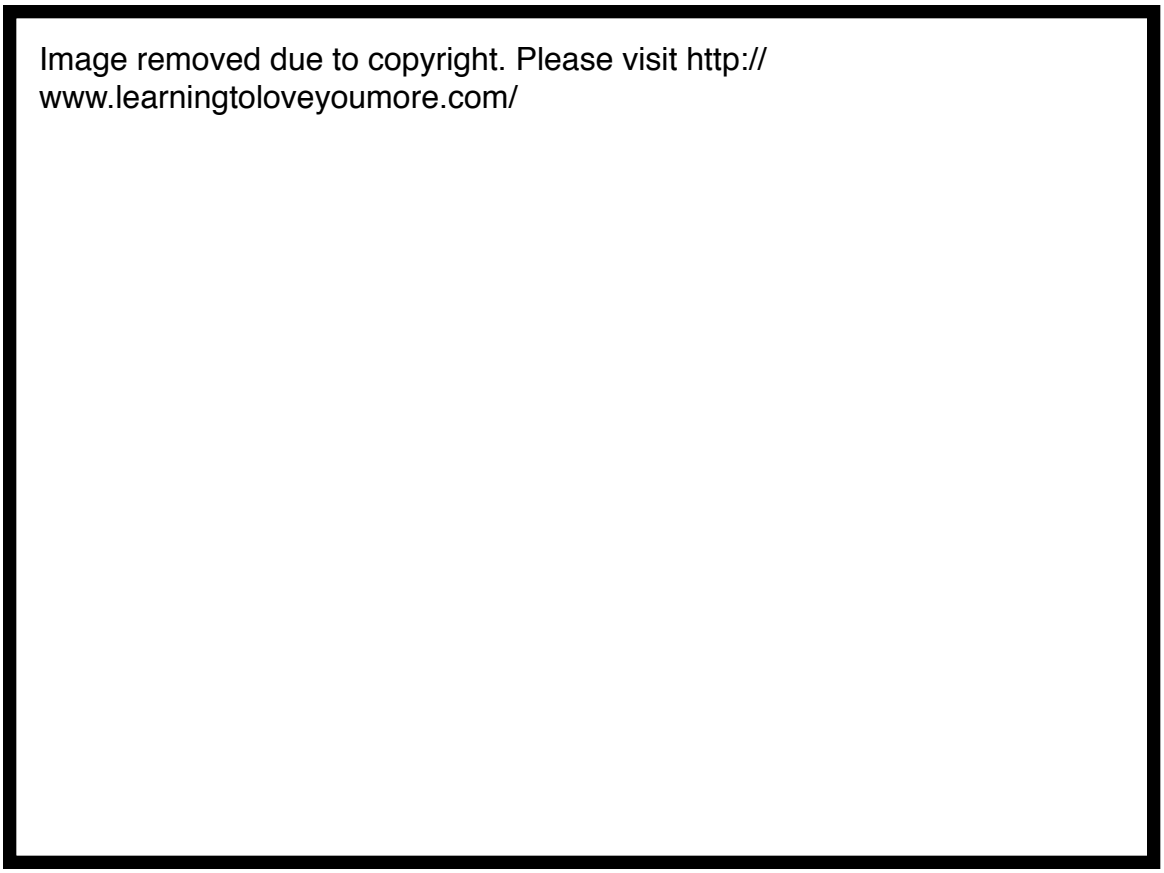


Figure 2.4. Screenshot of *Learning to LoveYou More*, 2007. (July & Fletcher, 2002)

The artists used new media or, more specifically, social media, to enable new collective experiences of knowing. Attentive to embodied experience, July and Fletcher designed "assignments" that ask participants to engage with their personal spaces and experiences in new ways. The series of assignments are a form of inquiry-based art curriculum and pedagogy. The structure of this art curriculum is a series of (now 70) ongoing prompts, questions, and tasks that range from "Assignment #30: Take a picture of strangers holding hands" to "Assignment #25: Make a video of someone dancing". Anyone with access to the Internet can participate. Participants can choose any assignment, respond to them through the media requested (usually reported through text, digital photography, audio, or video), and submit their responses for consideration to be included on the Web site. The nature of the questions prompt participants to examine an aspect of their own life experiences and knowledge. It is a constraint that enables a reconsideration of prior actualities to create new virtualities. In some of the assignments the artists would reference the responses from participants in a previous post. For example, "Assignment #19: Illustrate a scene or make an object from Paul Arensmeyer's life story," was designed in response to Paul's story from "Assignment #14: Write your life story in less than a day." The assignments are "intended to guide people towards their own experience" (July & Fletcher, 2005). Further, the artists described this activity as

> Democratic art as freedom from the burden, impossibility and supremacy of 'original' thought, market definitions of genius, value and salability. It is democracy as collaboration and shared expression. The political authority in this work is found in the collective, the average-ness and the everyday (though by no means mundane). This experiment and the works that have resulted decentralize the individual ego and attempt to diminish the collective anxiety and guilt that many Americans seem to feel during this difficult period in our global history. (¶ 4)

Learning to Love You More is not a democracy by every definition, due to the editing and selection powers of the artists. Not everyone who submits their responses will have them posted on the site. July and Fletcher set those parameters or constraints in which open-ended experiences do not just unfold; they fold into and elaborate each other collectively and dynamically. They take an emerging cultural practice, that of sharing photos and life experiences through a new and social media interface, and transform what is possible in social relations of collective knowing by prompting new kinds of attention towards the everyday. This conception of art offers visions-of-possibility spaces that exist outside of

the realm of entrenched cultural norms of new media, by attending to the embodied experience of participation and the extended agency inherent in the potentials of these new communicative technologies.

What Shaw, Kac, July, and Fletcher do is offer possibilities for shaping social spaces through new media to create new relations of knowing and learning. From interactive artworks like Shaw's, to *Learning To Love You More*, the medium of an artwork is more than a technology deployed; it includes the resetting and reshaping of relations between knowers in a system of relations.

NEW MEDIA ART PEDAGOGY AND CURRICULUM

What is suggested here is not a Discipline Based (DBAE) enactment of art education, where the art educator should try to have each individual student make a work like Edwardo Kac. Rather, what can be learned here for art education is an attention towards how new media art resets and reshapes social relations to create new systems for knowing and learning.

Garoian's (2008) use of prosthesis as a disjunctive and extension of embodied knowing through art enables an understanding for art pedagogy that resets and reshapes relations. As a disjunctive, it disrupts common associations and entrenched patterns of action. In *Learning To Love You More,* the "assignments" act as a kind of disjunctive extension to the body. This paradoxical statement is about reshaping one's relations to pre-existing interpretive frames through collective inquiry on the artists' Web site. The roots of the word *prosthesis* come from the Greek *prostithenai,* meaning "in addition to place". The place enacted by *Learning to Love You More* is one that reshapes the relational social norms and expectations of what knowing and knowledge should be, extending the body into a new social, knowing body.

As enacted in this study, a new media art curriculum and pedagogy is a resetting and reshaping of relations and interpretive possibilities through inquiry with and through new and social media. The curriculum in this study was a space to inquire into relations with ideas and the world through art. It is then a space for inquiry, through art, which is performed, created, and enacted collectively. The use of digital technologies, such as digital photography, video, audio, Web design, and so on, is very much a part of incorporating new media into the art classroom. The mere use of digital technologies is

not enough. The kinds and qualities of engagement, in and through an art curriculum and pedagogy of inquiry, must also be considered.

A SPACE FOR COLLECTIVE INQUIRY

> With lots of kids in the US and in other countries, I've asked, "Would you like to draw with me in my journal?" When we draw together, the result is a kind of hybrid visual culture that is other-than-child/other-than-adult visual culture. These sessions are what I call third-site pedagogy. They are not like school pedagogical settings, nor are they like the settings in which kids make their own visual culture. They are third-site pedagogical and research settings. When kids and adults relinquish their usual roles, their usual status as kid or adult, when they share sources and their tastes in art and contemporary visual culture, together they have the opportunity of becoming co-equal joint-producers ... (Wilson, 2008b, p. 9)

The qualities and kinds of participatory inquiry, knowing, and learning made possible by new and social media (Ito et al., 2008; Jenkins et al., 2007) in online interest-driven social networks suggest that, culturally, there is precedent for an art curricula and pedagogies as described by Wilson (2008b): a space and place where adults and teens can collaborate and inquire collectively. Having an awareness and collective space for inquiry is a kind of social proprioperception (Thompson, 2007). *Proprioperception* is the medical term which describes the awareness of where one's body or limbs is at any given moment. It is a self-awareness of the body, its condition, feeling, and position. The extension of this awareness and collective inquiry is reflected in an idea that social media and online networks form larger, overlapping, and intersecting bodies of knowing and learning. The possibilities for knowing, learning, and teaching art in new and social media, and the insights from the contemporary new media artists explored here, offer a way of thinking about new media and art education.

SUMMARY

The curricular and pedagogical possibilities re-presented in this chapter are broad, yet suggest an approach to thinking about new and social media in art education. Specifically, the qualities of certain contemporary new media artworks and their use of relational spaces to extend the knowing body were explored to conceptualize curricular and pedagogical possibilities. What new media artists do through a relational aesthetic is create a place that reorders and reshapes the ways in which a knowing and learning body connects to others and the *more-than-human world*. Like Wilson's third-space

pedagogy, that place is between schooling and not schooling, where the roles of adults and teens shift and are reshaped.

The insights for artistic inquiry that I have explored here operate at different scales through new and social media. First, inquiry through art should attend to the local, embodied knowledge of individuals. In attending to this kind of knowledge, the curricula, as a space of inquiry, should occasion a reshaping of the interpretive framing of relations with the more-than-human world. This is not unlike the Assignments in *Learning To Love You More*, wherein the artists ask for a reexamination of familiar relations. Second, inquiry through art also attends to those relations between a collective of knowers, be these in an online community or a classroom of art students. The curriculum and pedagogy of *Learning To Love You More* was not just about individual artistic inquiry into local conditions and knowledge; it was also about what happens when knowledge starts to relate, interact, and overlap dynamically (Davis & Sumara, 2006). By asking for responses to previous representations of artistic inquiry in the collective knowing body, the artists prompted a shift in the ways in which participants came to relate to their ideas of one another.

One of the goals and purposes of this research is to theorize and enact an inquiry-based art curricula and pedagogy, as drawn from the practices of contemporary new media art. This goal is described here and more fully developed over the next three chapters. Simply, the curricula and pedagogies enacted in this study aimed to create an inquiry-based curriculum that had three phases.

The first phase was focused primarily on reshaping relations with ideas about happiness in our culture and personal lives. This theme was chosen because it offered a space to consider a commonly held desire of most people—to be happy—as a beginning for examining individual relations with the world as developed through digital photography and video. The art documentary film *Euphoria* (Boot, 2008) accompanied the first four weeks of the curriculum. It was chosen because the filmmakers present complex visual metaphors that are open for interpretation as a way to start dialogue between viewers. The aim of the filmmakers was to help viewers create new relations to ideas and to each other through dialogue.

The second phase shifted towards the collective knowledge that was being enacted by participants. Specifically, the curriculum and pedagogy asked for an engagement, and

further artistic inquiry, into the system of ideas represented on the social network. A number of the specific strategies employed were drawn from *Learning To Love You More*.

The third phase emphasized an extended individual inquiry in relation to the experience of inquiring with and through a collective of knowers.

In the following chapter I re-present an understanding of complexity thinking to articulate understandings of learning art at the individual and collective scales as it is enacted in this curriculum, pedagogy, and social network space.

CHAPTER 3: COMPLEXITY THINKING

> If the properties of complex systems were to be compared with the practices of contemporary artists, might art educators have a better understanding of developing forms of creation, distribution, and collaboration currently in practice? If art educators were to then structure pedagogical approaches accordingly, what might these forms of networked art education look like? (Sweeny, 2008, p. 89)

This chapter focuses on addressing a series of questions posed by Sweeny (2008): specifically, what can complexity thinking offer, both to design and enactments of art curricula and pedagogies, and to understandings of learning through the visual arts? The purpose of this chapter is to articulate an understanding of complexity thinking and how it is used to inform the design of the art curricula and pedagogy in this study. This is also the theoretical framework interpreting knowing, learning, and teaching through new and social media. In Chapter 2, many of the epistemological positions of embodied knowing, interobjectivity, and the relational qualities of new media art are also a part of thinking complexly. In considering the relational qualities of new media, complexity thinking has much to offer in articulating a way of theorizing phenomena that are about dynamic interrelationships across many scales.

In this chapter I present a broad understanding of complexity thinking, emergent phenomena, network architecture, complexity and identity, and constraints that enable landscapes of possibility. I begin by addressing how complexity thinking expands the understandings of systems thinking by considering scales and nested structures of complex phenomena. I describe an understanding of emergence as a way to articulate how the interrelationships at one scale give rise to qualitatively different phenomena at another—for example, how the co-activity of individuals gives rise to a society. I then describe networked architectures as way to further elaborate the dynamic structures of complex systems. Such articulations are important for understanding the dynamics of learning in a collective of individuals inquiring through art. Following this, I present a theorization of identity through complexity, space, place, and time: articulations which are important for understanding identity in online contexts. I conclude this chapter by extending the metaphor of space of inquiry into landscapes of possibility. Using understandings from complexity thinking, I then articulate how certain *constraints that enable* can occasion a landscape of possibility for inquiry through art.

COMPLEXITY

The roots of complexity thinking can be traced back to early efforts in cybernetics and artificial intelligence at the Bell labs in the first half of the 20th century (Waldrop, 1992). By the late 1940s, information theorist Warren Weaver presented a view of scientific knowing that was distinctive in that it addressed "dealing simultaneously with a sizable number of factors which are interrelated into an organic whole" (Weaver, 1948, p. 539). Weaver's view acknowledges that there are phenomena in the world that cannot be understood through linear Newtonian explanations (Davis & Sumara, 2006). Nevertheless these types of scientific understandings have come to pervade our understandings of human behavior (Juarrero, 1999). Linear, efficient, and mechanistic ideas of causality have lead to metaphors of mind as machine, with input/output understandings of learning. One does not have to look far to see these metaphors embodied in the current educational culture–for example, in the high-stakes testing that is practiced in the United States.

Metaphors of complexity have often been used to describe self-organizing phenomena that have no apparent central controller. They include metaphors of ant colonies, beehives, stock markets, and ecosystems, self-organizing into coherent, seemingly purposeful patterns with no apparent central controller. These are the qualities embodied in Sweeny's (2008) questions for art education. Such metaphors have often been used to explain how dynamic, decentralized, bottom-up, emergent, and complex systems form and function (Kelly, 1994). For example, complexity deals with the self-organization and nonlinear dynamics of systems made up of many participants (Johnson, 2001).

SYSTEMS THAT LEARN

In education, *complexity thinking* has been defined as the study and support of learning systems (Davis & Sumara, 2006). Learning, as understood through complexity thinking, is the ability to *adapt* and *anticipate* new and diverse phenomena and environments. Learning systems can only recognize and respond to that which their perceptual and knowing structures are able; this means that a learning system, in its interactions with an environment, would have to somehow embody the ability to interact with an environment. Complex learning systems have histories that are enacted in relation with context. These are embodied histories of adaptations and anticipations, which give rise to interpretive framing of possible actualities. Learning can be said to take place when enacted interpretive frames are reshaped and when possible actualities, in becoming actualized, do not resemble prior actualities. From these reshapings of interpretive

frames emerge new interpretive possibilities (Capra, 2002). Complex systems do not learn in isolation but in relation. When multiple complex systems interact dynamically in meaningful and interdependent ways, new phenomena and interpretive possibilities emerge.

TRANSPHENOMENA

Powers of 10, the 1977 film (Figure 3.1) by Charles and Ray Eames, begins from a bird's-eye-view of a picnicking couple in Chicago. The narrator explains that we will take a journey, zooming upward and traveling at the power of 10 in 10-second intervals. The camera view zooms out into the far reaches of space, stopping at the 10 to the power of 24 meters. Traveling back to earth at an accelerated pace, the camera then zooms to the sub-atomic level of protons and quarks in the hand of one of the picnickers. At each scale, from skin cells to the Milky Way Galaxy, we notice striking similarities and distinctive detail.

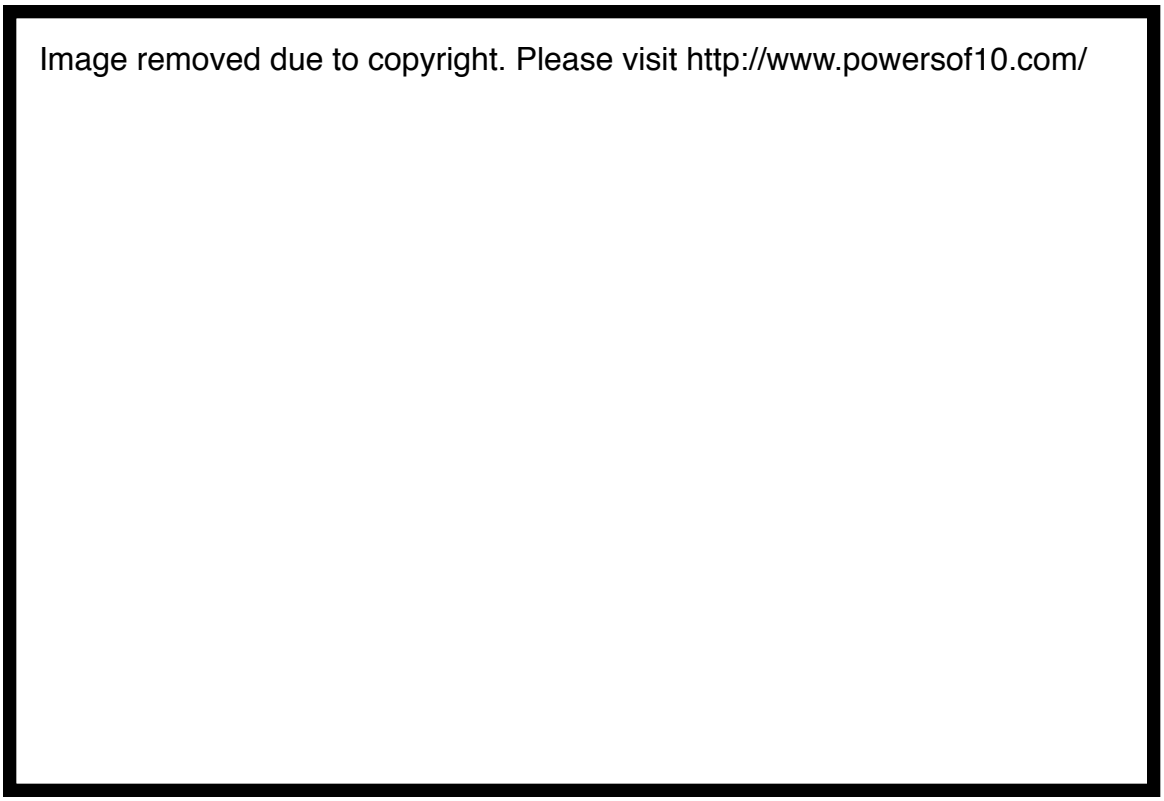


Figure 3.1. Powers of 10. Charles and Ray Eames (1977).

One of the differences between complexity thinking and systems theories of learning is that of scale. *Powers of 10* presents a visualization of phenomena co-existing dynamically at different scales. The interrelationships and dynamic activity of complex systems with other complex systems gives rise to qualitatively new and different phenomena. The dynamic interrelationships of cellular systems give rise to bodily systems, which give rise to human consciousness, which give rise to social groups, which give rise to cultural groups, which give rise to species, which give rise to a biosphere (Figure 3.2).

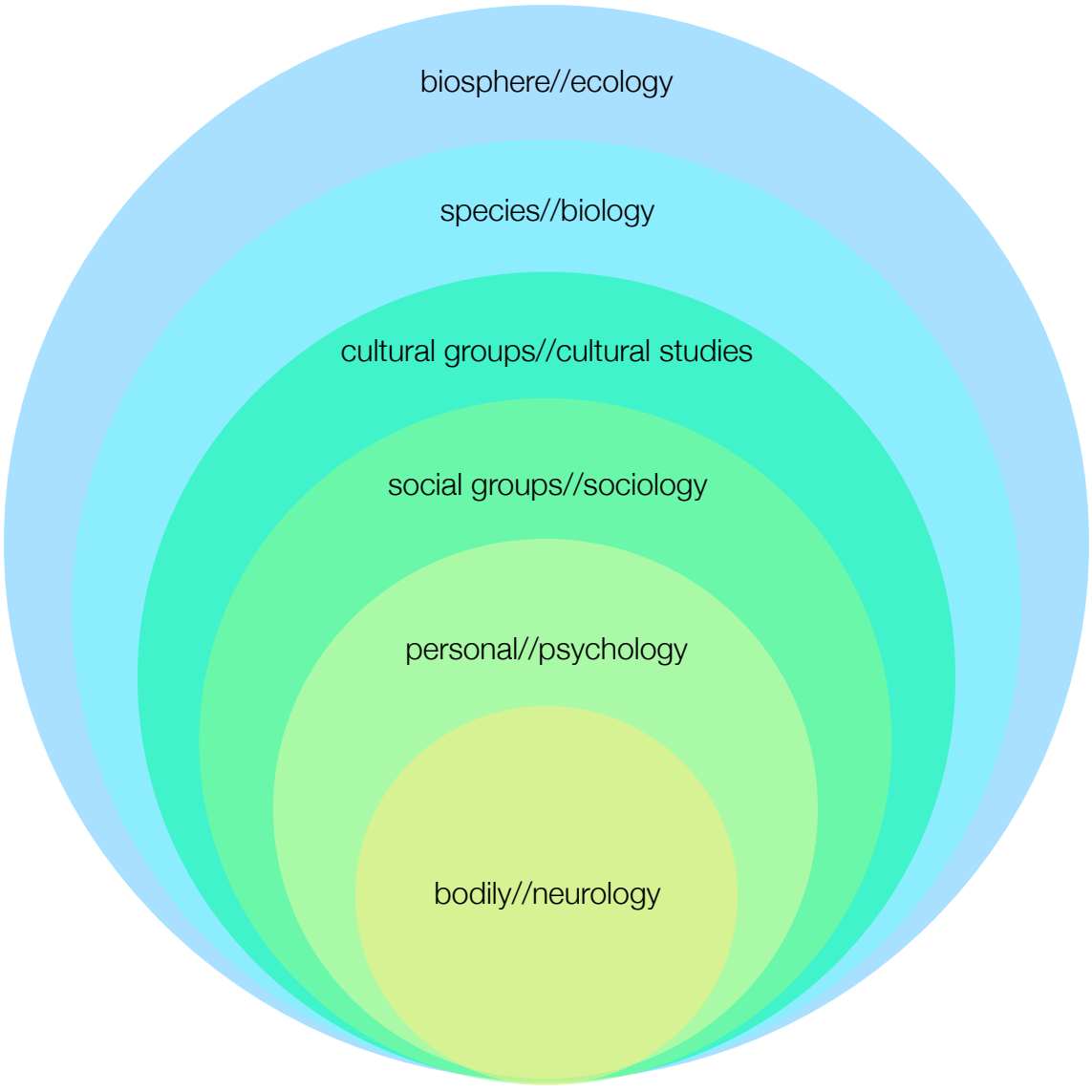


Figure 3.2. Nested Transphenomena and Transdisciplinary Discourses. *Note*. From *Complexity and Education: Inquires into Learning, Teaching, and Research*, by B. Davis and D. Sumara, 2006, Mahwah NJ: Lawrence Erlbaum Associates. Adapted with permission.

Complexity thinking is about holding all of these phenomena in dynamic conversation when addressing learning. Complexity thinking extends nonlinear systems understandings of learning art (James, 1996, 1997). In systems understandings of artistic learning, diagrams usually show a field in which the individual, social, domain knowledge, and context are of equal size and distribution (James, 1996). Complex dynamic systems are nested (Davis & Sumara, 2006). The concept of *nested* phenomena contrasts with understandings that treat social and individual phenomena at relatively the same scale. This is a *transphenomenal* understanding of learning–one that treats learning as being possible across scales of phenomena.

Learning, as a process of adaptations and anticipations, occurs nonlinearly through recursively elaborative processes of feedback loops. As individuals in the classroom learn, so does a knowledge system in the classroom, which feeds back into the systems of individuals. A system of knowledge is a dynamic complex system of ideas that results from individual artistic inquiry. It is an inefficient, nonlinear kind of causality (Juarrero, 1999), wherein the language and understandings to describe one scale of phenomena might be incapable of describing a different scale of phenomena. Here, complexity is considered not a meta-discipline; rather it is a *transdisciplinary* discourse (Davis & Sumara, 2006). Complexity thinking enables a dynamic conversation between the disciplines that describe specific scales of phenomena. This also is where complexity thinking is most useful to discussions of learning art in new and social media, where representations of individual inquiry and interaction online form systems of interrelations that feed back into the collective of individuals. In the new media artwork *Learning To Love You More*, we can observe the enactment of these kinds of dynamic interrelationships. Emergence, which comes through transformation, is a characteristic of complex dynamic systems.

TRANSFORMATION AND EMERGENCE

> The arts are among the resources through which individuals recreate themselves. The work of art is a process that culminates in a new art form. That art form is the recreation of the individual. Recreation is a form of re-creation. The arts are among the most powerful means of promoting re-creation. (Eisner, 2002, pp. 240-241)

Eisner's statement about the arts reflects a desire to continually re-create the identity and position of an individual. Whether it was the purpose of art to raise one's social

place as in the 19th and early 20th centuries (Chalmers, 2000), further the psychological development of the individual (Lowenfeld & Brittain, 1963), achieve mastery of a discipline and its methods of inquiry (Barken, 1963), or emancipate the individual from the powers of culture (Tavin, 2003), art education tacitly holds transformation at the scales of individual and social as part of its purpose in education. The roots of the word *transform* come from "trans-" meaning "across", and form the Latin *forma*, meaning "mold" or "form". Transformation is a process of dynamic change. Transformation and emergence both describe a process of change. Here, I use emergence in place of transformation. Transformation speaks to one quality of change, as does emergence. Emergence is that which is brought forth from the dynamic interaction at one scale of phenomena to other scales. That is, via individual and collective inquiry through art, and the dialogue of understandings that occurs between participants and ideas, it gives rise to a system of knowledge that can be neither predicted nor planned for. The curriculum and pedagogy described in this dissertation is not necessarily about the transformation of an individual; rather, it is about what new forms of knowledge can emerge from new relations between artistic inquirers. It is an emergent curriculum and pedagogy.

EMERGENCE

In discussion of complex systems, the term *emergence* is typically used to describe when the interaction of individual agents gives rise to possibilities that were not previously available to any one individual. The root of the word *emerges* comes from the Latin *emergere*, meaning "to become known", "to come to light". Going a little further, we see that *emergere* is composed of the *e-*, a variant of *ex-* meaning "out", "forth" coupled with *mergere*, meaning "to dip" or "to sink". The image of a rising form contrasted with a sinking, dropping action creates a visual metaphor not unlike the dynamics of many organisms which are complex systems. On a cellular scale, forms are clustered together interdependently, giving rise to more complex forms of behavior. This is understood as an emergent structure: groups of lower-scale patterns of organization interdependently giving rise to scales of organization with qualitatively different sets of properties that are non-reducible to those of the lower scales. Steven Johnson (2001) defined emergence as "[t]he movement from low-level rules to higher-level sophistication" (p.18). The interdependent co-activity of ants, birds, and bees gives rise to descriptions of ant colonies, flocks of birds, and beehives. In the realm of human activity, individual co-activity gives rise to the qualitatively different forms of neighborhoods and societies.

This idea of lower-scale properties giving rise to higher scales of organization is not new. In “The Rise and Fall of British Emergentism”, McLaughlin (1992) posited that certain philosophical ideas identified with the British Emergentism movement about causal structures of reality distinguished it from most empirical science of its day. However, when British Emergentism went looking for the empirical traces of emergence it discovered its limits (McLaughlin, 1992). This tradition of thought is significant in that there are nonlinear causal *influences* that emerge through co-activity of certain types of micro-structures.

This is what prompted Weaver (1948) to call for a new way of understanding systems. These causal powers give rise to new causal powers, and to structures that are qualitatively different. Although higher scales of organization influence smaller scales of activity and vice versa, they cannot be reduced into each other. As visualized in *The Powers of 10,* the amount of detail in quality and character is held intact in whatever scale you look. Fractal imagery is an illustration of this phenomena, in that no matter whether you look closely or pull back, a level of organizational detail remains intact—as does a self-similarity of patterned form.

CONSIDERING CHARACTERISTICS AND CONDITIONS OF EMERGENCE

Paul Cilliers (1998) described complex systems as being characterized by a number of elements; these elements interact dynamically; the interactions are fairly rich, nonlinear, and have a fairly short range; and the interconnections are a process of feedback loops. The complex system itself is bounded, yet open; it moves away from equilibrium or stasis; it has a history of interactions; and its individual elements are not aware of the whole system. Cilliers (1998) stressed this last point by stating that individual elements “cannot contain the complexity of the whole system and can therefore neither control nor comprehend it fully” (p. 122). This characteristic underscores how the position of the observer is limited in perceiving the complexity of entire systems. It also informs an attitude taken in the pedagogy enacted in this art curricula, of not wanting to control individuals or the collective, but rather wanting to participate as a part of the collective. Emergence is an important idea for art education if we are to think about what it means to be a space for transformational processes.

The conditions for the emergence of a complex learning system are too numerous to count (Davis & Sumara, 2006). List-making is inherently problematic, but what Cilliers and many others have done is to begin describing some of those characteristics and

conditions of complex dynamic systems that bring emergence. I emphasize specific characteristics and conditions in this study. I focus on *dynamic*, *rich*, *nonlinear*, and *short ranged interactions*, also described as *neighboring interactions*; *decentralized network structures*; *feedback loops* or *recursive elaboration*, and *histories of complex systems*. Some conditions were already established, in the sense that they were created by the structure of the educational design. For example, the use of a closed social network site to protect the identities of the participants created an ambiguously bounded and organizationally closed system. It meant that the knowing system was open in that the participants contributed local knowledge through text and image into it, yet remained closed in the sense that such information streams were stable. To use the analogy of human sensory input: we did not grow extra eyes or ears from the addition of new participants throughout the course of the study. The next sections describe the characteristics and conditions of emergence that were attempted in the art curricula and pedagogy through our social network site.

INTERACTIONS

The quality and kinds of interactions in this study's social network site were key to the emergence of a complex collective knowledge system. Yet, interactions and relations between individuals were not enough for the design of the curriculum. There had to be something to interact with—a common and shared interest or idea.

Curiously, however, emergence tends to occur when individuals are deeply committed to their own local knowledge (Surowiecki, 2004). This means that the art curriculum was not a group project, like a mural designed and painted through consensus. It was a curriculum that asked for the kind of local knowledge that only an individual could provide. The aim in the curricular design for this study was to create both a space and a process where each individual's local knowledge could interact, and where ideas could bounce up against one another (Davis & Sumara, 2006). The qualities of such interactions are dynamic, rich, nonlinear, and short-ranged.

Dynamic interactions are understood here as constant exchanges between participants. Meaning exists in relations and dialogues. This was enacted through individual messages, comments posted in response to images, blogs, and forum dialogues; all of these helped create a dynamic system of knowledge. The knowledge system was dependent on continual interaction between participants, even if it was a simple "hey, I like your photo." When dynamic interactions stop, so does the complex learning system.

Rich interactions are understood here as a diversity of ways to respond and relate. Participants could respond to each other in a diversity of ways, meaning that interactions were rich not only in kinds of textual exchanges, but in ways such as posting an image, an emoticon, or a hyperlink to another Web site. Rich interactions can also be thought of as the diversity of ideas represented in the dialogues, images, texts, and Web references.

Nonlinear interactions are understood here as asymmetrical. This means that flows of interactions are multidirectional. In contrast to linear interactions, which flow in one direction, nonlinear interactions—although intended for one participant—can affect another. For example, a comment posted in response to an image can be read by another participant and thereby affect his or her learning (see Chapter 6). As some dialogues between participants are public, they affect the collective.

Short-ranged or *neighboring interactions* are understood as proximity between those who interact. This is easy to understand in classroom contexts, where students who work and sit next to each other affect each other, and where interactions affect and are affected by the social relationships brought from outside of the classroom. This was seen initially in our social network, where participants who previously shared social bonds interacted with each other first. Neighboring interactions can also be described in terms of the proximity and connection between ideas.

INTERCONNECTIONS

The kinds of interactions described flowed through specific types of interconnections. In complex systems, the structure of interconnections is decentralized. *Decentralized networks* are structures that do not have one central controller or hub; rather, they are linked through a series of well-connected centers or hubs. More importantly, *decentralized networks* describes the dynamics of a complex system. What is important here is how feedback loops in a decentralized system enable recursively elaborative patterns of interactions.

Feedback loops refers to the quality of interconnection that characterizes the dynamic quality of complex systems. Feedback is when a prior actuality, embodied in the history of the complex system, loops to influence action in the present or future. Capra (2002) stated that emergence “takes place at critical points of instability that arise from

fluctuations in the environment, amplified by feedback loops" (p. 116). Feedback is a circular process in which the result of something is the source for the next iteration. Points of instability arise at the scales of individual and collective. They occur when

> the event triggering the process of emergence may be an offhand comment, which may not even seem important to the person who made it but is meaningful to some people in a community of practice. (Capra, 2002, p. 117)

Because the event is meaningful to the knowing system, its affect is distributed through a decentralized network of links, circulated through feedback loops, and further amplified at each iteration. When this knowledge is amplified to the point where the present structure can no longer handle it, or rather, when the information does not easily fit into the already-present categories of organization, it modifies the structure to adapt to the new knowledge—either by abandoning prior behaviors, or by enlarging them to accommodate this new knowledge. This is how complex systems learn. In this study, new structures of knowledge were not designed by any one individual; rather they resulted from our dynamic, collective inquiry through art.

Feedback loops also describe recursively elaborative processes. *Recursive elaboration* is understood as looping process that references a prior action into a future action. It is not unlike the theorization of knowing presented in Chapter 2, and the process of iteration in design-based research. In the context of the art curriculum enacted in this study, weekly prompts and questions referenced not only prior prompts, but also the ideas represented in the dialogues and images of participants. Recursive elaboration is dependent on a prior actuality, an embodied history of ideas in the knowledge system.

HISTORY OF INTERACTIONS

A complex system of knowers and learners embodies a *history of interactions*. Interactions carve out understandings in a *possibility landscape* and read like a topography. A history of interactions is found in the dynamic knowledge system that emerges from the patterned interactions of knowers. Knowledge systems embody a history of ideas and the relationships between them. For a system of knowledge to be dynamic and emergent, it needs a history as a reference for possible new knowledge. One of the advantages of using a social network is asynchronous communication. This means that communication or dialogue need not occur in real-time; rather, it may occur through time. This also creates traces of relationships between ideas. For the

researcher, these traces offer an opportunity to visualize the recursively elaborative patterns of a collective knowledge system.

NETWORKS

Complex dynamic systems are structuring, structured structures (Davis & Sumara, 2006). In other words, complex dynamic systems are (a) structuring, that is, constantly adapting to that which is at hand; (b) structured, that is, having a history of adaptations; and (c) structure, that is, an ambiguously bounded, organizationally closed system. The architecture of these structures is best described as networks. Therefore this section looks first to describe types of network structures, and second, to look at the purpose of network structures in art curriculum and pedagogy.

STRUCTURES OF NETWORK SCIENCE AND HISTORY

The history of the study of networks can be traced to Leonard Euler's desire to solve the Königsberg Bridge problem, which asked: "Does there exist any single path that crosses all seven bridges exactly once each?" (Newman, Barabåsi, & Watts, 2006, p. 1). Euler's attempt at solving this riddle employed the use of a graph, a mathematical object consisting of points, complete with nodes and links. Graph theory rose to become the major force in describing the properties of networks in the 20th century (Newman et al., 2006). In the second half of the 20th century, graph theory was taken up by sociology to help understand data from ethnographic studies (Wasserman & Faust, 1994). Perhaps the most famous of studies of network structures in social systems is Migram's small-world problem (Milgram, 1967). Milgram's experiment focused on the average number of social connections between any two people in the United States. The study demonstrated that the social connections between individuals averages around six people. It led to the term *Six Degrees of Separation*, although this was never mentioned in the study. The term *network* is now used in descriptions of all manner of social interactions, from the rise of cities to the dynamics of fads.

Beyond just the label of social media as social networks, network theory has emerged as a way to understand the structural dynamics of complex systems. There are many ways to use a network understanding to describe relational phenomena, from molecules to the Internet and social groups, from power grids to the structure of ideas. Lakoff and Johnson (1999) described how we make sense out of the world by building complex metaphors that are themselves constructed through associations to primary metaphors.

Associations between *this* and *that* are how we build cohesive understandings of the world. Thus meaning is never self-evident, but always in relation. These relations are structured in terms of hubs as ideas, and links as associations.

Cilliers (1998) conceptualized networks of linguistic structures. Linguistic semiotics and human relations in post-structural understandings have often used the metaphor of networks to describe the relationships of power, production, and meaning (Derrida, 1982; Foucault, 1980). For Cilliers, nodes on the network are constituted through their connections to other nodes, which are those traces that run through them. Cilliers used the node as an analogy for Derrida's sign. This network of relations is *flat*, meaning that there is one center or essential meaning. To be meaningful, meaning needs relations. We often understand what a word means through the relations and associations not only of the sentence structure in which it is found and what has come before, but also of our personal understandings of the word and its etymological roots. All come to shape its meaning as it is encountered in that moment. Outside of linguistics, networks of associations shape how we think and make sense of the world, how information flows through the Internet, and how diseases and fads spread. In this study, network understandings are key to understanding the structure of knowledge and participants' relationship to each other through the social network.

NETWORKS AND POWER

Foucault describes power not as an organ of oppression, meaning that power does not reside in things. Power resides in action. It moves through network structures. Social scientist Castells' (1996) research delineated a theory of societal and economic activity as a "networked society." He stated:

> This information age has never been a technological matter. It has always been a matter of social transformation, a process of social change in which technology is an element that is inseparable from social, economic, cultural, and political trends. (Castells, 2001, p. 3)

For Castells, technology is the determining factor in pronounced network behavior; rather, it is co-specified by social and economic activity. Technology does not determine a networked society, but it enables the possibility of these types of activities and interpretive frames to emerge. Castells' theories surrounding networked societies tended toward conclusions in which he placed the space and flows of networks in a timeless and non-existent space. For him, this creates a view in which the desire of people to be

rooted in a place is dissolved. As a result, globally networked economies that find meaning not in place but in power and production become systems of oppression. Global capitalism has ravaged local economies and exploited untold amounts of workers and ecosystems; however, the use of network metaphors to describe resistance to this phenomenon is missing from his work. Networks are not inherently good or bad; rather, they are the structures in which power flows. One counter-example to Castells is the World Trade Organization protests in 1999. These were described as a leaderless movement (Johnson, 2001). This movement was a network of smaller groups, such as anit-Nike protesters, radical environmentalists, labor unions, and so forth. For the most part they operated independently, coming together occasionally to share information and coordinate action. By having a decentralized system of resistance, they were collectively able to consistently hold together a more sustained protest than if they had been following one leader or leadership hierarchy. This movement was also enabled by networked new and social media technologies (for example, mobile phones, chat rooms, and Web sites) to coordinate embodied local action.

Though power and systems of oppression do flow through network structures (Foucault, 1994), networks are not inherently democratic or undemocratic, oppressive or liberating; rather, it is the interpretation of the dynamics of networked relations that describes our own cultural values we impose on them. Those who are in power might see their actions as the functioning of government, while those who are subjected through the power in networks might experience it as inherently oppressive.

NETWORK STRUCTURES

A variety of structures can be referenced to describe the morphology of networks (Barney, 2004). I wish to describe three network forms: distributed, centralized, and decentralized. Making up these network forms are nodes and links, which connect nodes. The number and quality of links define the characteristics of nodes.

NODE

Nodes can be described as a bounded system. Nodes are elements of a system, such as the vital organs of an organism, or the distinct components of an idea. In this study I use the idea of nodes to represent participants, their ideas, their images, and ideas of the collective. Nodes can be connection points or terminuses. Cell phones and computers are nodes; in pre-Web 2.0, computers acted more as terminuses whereas

now they act more and more like communication channels. Nodes are where links intersect and connect.

LINKS

Links are associations between nodes. In this study, they could be considered to be the associations and relations between participants and their ideas. Links have distances between nodes; the closer or shorter the links between nodes, the stronger the association between them. For example, participants who knew each other outside of the study, such as Opti and Gaelan or Sophie and Mango who are close friends in school, were more apt to comment and respond to each other's images than they were to someone they did not already share a link with. This did not mean that participants who did not know each other previous to participating in the study did not establish new links. Links can also be thought of as a relation or interconnection between any two elements.

HUBS

Key to understanding the dynamics of decentralized networks are *hubs.* Hubs are nodes that have proportionately more links or ties than do other nodes in a network. Examples include major airports like London-Heathrow or Frankfurt: fly anywhere in Europe from North America and you are likely to go through one of those two airports. They act as hubs because many smaller airports associate with them through their links, or flights, to and from there. Ideas can act as hubs: for example, *sustainability* is becoming a hub in which all sorts of areas of inquiry are associating, such as education, design, architecture, and economics. All decentralized networks have multiple hubs, that is, nodes with a much larger proportion of links. I will now describe how these network features can be organized in three broad categories: *distributed*, *centralized*, and *decentralized*.

DISTRIBUTED

Distributed networks have a structure that has few, if any, hubs in its architecture. This was the architecture for the U.S. Army communication network, ARPANET, one of the precursors to the Internet (Leiner et al., 2000). Distributed networks are comprised of nodes that have a fairly even distribution of links. The reason the U.S. Army was interested in this design was because of its ability to distribute information even if multiple nodes (cities) were taken out in a nuclear attack. Its advantage is that it is very

resistant to failure in communication, although it can also be very inefficient in terms of the time taken for information to make all the jumps from one node to another.

CENTRALIZED

A centralized network has many nodes, all linking to one central hub. This type of network architecture is very efficient and effective at communicating and distributing information. Centralized networks do not enable communication between nodes, other than through the centralized hub, which makes for inefficient communication between elements in the network. It is also much more vulnerable to breakdown if the centralized hub is removed or unable to communicate effectively.

DECENTRALIZED

A decentralized network is one with a distributed amount of nodes, with the exception that there are a number of hubs, or nodes with proportionally more links than a majority of nodes in the network. Decentralized networks are characterized as *scale-free*, which is the underlying structure of complex dynamic systems. Scale-free networks are characterized as having a degree distribution of links to hubs that follows a power law. It has been empirically observed in protein networks, citation networks, and the World Wide Web (Barabási, 2003). Power-law distributions are a type of mathematical relationship between two quantities, one fixed, the other proportional. This means that small occurrences of a phenomenon are common, while larger ones are more rare. Barabási's (2003) research has shown that in the terms of how the World Wide Web has grown, it is no longer the distributed network it was when it began but has become a decentralized network with certain Web sites acting as hubs. Google or The New York Times Web sites serve as hubs, with many links intersecting through them.

DYNAMIC NETWORK STRUCTURES

Decentralized networks are dynamic structures, not static, but constantly add and prune new links, nodes, and hubs. They are structured, structuring structures. Networks should be understood not as fixed hardwired properties underlying the architecture of complex dynamic systems, but rather as adaptive and context-sensitive. Networks are also flat, meaning that there is no governing metaphysical blueprint; rather, it is a set of relational properties. The metaphor of decentralized networks can be used to describe classrooms as complex learning systems. What is very important here is that decentralized classrooms do not mean getting out of the way, or that there is no center; rather, it means there multiple centers from participants to ideas. Decentralized network

metaphors are more useful in describing the dynamics of learning rather than any hierarchy of power or responsibility in a classroom.

Decentralized networks are also referred to as scale-free networks. Scale-free networks are governed by power-law distributions, meaning that they grow proportionally in relation to the amount of well-connected nodes or hubs (Watts, 2003). Decentralized networks have a proportionately fewer amount of hubs than they do individual nodes. The growth of decentralized networks have certain relational properties of growth.

DYNAMICS OF A DECENTRALIZED NETWORK

As opposed to a bicycle-hub shape of a centralized network, decentralized networks have multiple hubs, all competing for links. The word *competing* denotes a sense that certain hubs just attract more associations than others. Again, we do this in our thinking, especially in our use of metaphors to organize our ideas, associating complex metaphors with primary metaphors (Lakoff & Johnson, 1999). Rather than suggesting that primary metaphors are somehow fundamental building blocks used to piece together complex metaphors, I suggest that they are more appropriately described as complex metaphors built through association with many primary metaphors. For instance, the category of transportation is a hub with links to walking, bicycling, driving, flying, and so on. Transportation, for example, is not a totalizing hierarchy, but rather a hub comprised of other hubs—such as cars, which may be associated in another web of relations, such as climate change. Decentralized networks have a few number of well-connected hubs, and links to these hubs are based on preferential attachment.

Watts (2003) argued that when a network is first established, “links between nodes come into existence entirely independent of one another. At any point in the construction process, poorly connected nodes are just as likely to make or receive new connections as are the best-connected nodes” (p. 108). In an ideal and fair world every node or idea would receive an equal amount of links over time. Research by Barabási and Albert (1999) found that scale-free networks grow in a *rich-get-richer* way, meaning that nodes with more links get more links in proportion to their already established ones. Watts (2003) continued: “if one node has twice as many links as another node, then it is precisely twice as likely to receive a new link” (p. 108). For example, with online videos, views beget views, and search hits beget more search hits in ranking and search results.

Decentralized networks are dynamic, evolving structures. The term describes the architecture of complex dynamic systems. The concept is useful in interpreting complex phenomena. In this dissertation, decentralized networks are used to structure a curriculum and analyze its design. This was especially true in the second phase of the curriculum, when participants were asked to attend to the ideas within the growing collection of images posted. The dynamics of decentralized networks is important in the data visualization of our knowledge system that is offered in Chapter 9. The metaphor of decentralized networks is not one of removing a center; rather, it describes the dynamics of complex systems.

I have described scaled and nested qualities of complex systems, conditions and characteristics of emergence, and the structures of networks. All of these understandings play important roles in the curricular design and interpretation of data in this study. I now move to describe understandings of space and place in relation to identity and complex systems. This is important for conceptualizing the sites of research as both online and offline and the identities of the participants.

SPACE, PLACE, IDENTITY, AND COMPLEX SYSTEMS

Throughout this dissertation I use metaphors of space and place to describe artistic inquiry, curricula, and learning in and through new and social media. I begin this section by first examining how space and place are linked to time, because to discuss space or place, the dynamics of time must also be considered. I then examine how complex dynamic systems are identified by their patterns of activity and relations, rather than by any fixed, locatable object or agents. *Identity* is understood here as coherent patterns of activity through space, place, and time.

SPACE, PLACE, AND TIME

Space and place are often conceptualized in terms of three dimensions: height, length, and width. The difference in the definitions of the two terms is that space is an area that is unoccupied, empty, or available, while place is defined as an area that is a point in space, usually occupied or identified. Defining space and place as presence and absence in this way is inherently problematic because of the exclusion of time (Massey, 1994). Space, that which is empty, is often presumed to be static or fixed, and like space, place is similarly tied to a fixed identity or impermeable boundary.

Space, then, can only be experienced and subsequently observed through and with time. To understand concepts of space or place, one has to have embodied some kind of movement through a space or place. Space and place change as an observer moves, which makes them contingent on the moving position of the observer. There is no such thing as a static observer; there are only attempts, through power, to fix a space or place, with language creating an impermeable boundary.

The interdependent nature of space, place, and time challenges this notion of a space or place that is fixed or static. In fact, they are dynamic. If space, then, is interdependent with time because it is linked to the dynamic movement of an observer, the ways that observers frame spaces become inextricably linked to their own interpretive framings based on their own embodied histories. Our perceptions and descriptions of any space or place construct it, and attempt to fix it; yet they adapt constantly to its dynamic and temporal nature. The observer and observed are co-specifying.

When used as a descriptor in this study, and especially when used to describe the social network, *place* is defined as an intersection of specific relations. The place of the social network required participants to explicitly redefine their self-described social relations and understandings by creating pseudonyms and visual metaphors for their online profiles. The requirement that participants construct an identity that was not explicitly linked to their physical identity had the effect of reordering and reconstituting social relations. Massey (1994) stated that “within this dynamic simultaneity which is space, phenomena may be placed in relationship to one another in such a way that new social effects are provoked” (p. 4). This is an important understanding to interpreting identity construction by teens online.

IDENTITY

Space, place, and time are interdependent to an observer. The participants and I shaped our space, thus making it a place through our actions and descriptions. Our place was an intersection of particular relations. This intersection of relations and descriptions of our relations shaped our identities.

Place is understood as a space and time of particulars. The particulars of a place also bring the politics, power struggles, and social conflicts associated with attempts to fix and define a place. Such attempts to fix space create associations between those who inhabit a certain place and those who move through it. As educators, we are constantly

constructing identities of our students through associations of place, for example: “this student might be trouble; he comes from a bad neighborhood.” Massey (1994) also described the construction of gender as associated with the social norms of a particular place. For example, home or nature are places that are often associated with ideas of what it means to be a heterosexual female. The cultural norms generated from a pattern of activity and descriptions in a place both shape and are shaped by identities.

Identity, then, is interwoven into and through space, place, and time. It is defined here as patterns of activity that can be demarcated from a space, yet it is inextricably a feature and a dimension of place. Complex dynamic systems are not concrete, fixed objects. They are irreducible to their component parts. A complex dynamic system is defined or identified through its recursively elaborative patterns of activity. If we are to understand place as a dynamic intersection of interdependent phenomena, we must understand it as a place of emergence. Juarrero (2002) used the concept of invariance, or robustness, to describe how complex dynamic systems operate with a meta-level stability. In patterns of activity, such meta-level stability is far from stable; in fact, it is always moving away from equilibrium. Juarrero deploys this idea of invariance to counter the Platonic ideal form, to dislodge the idea that the any one component is a meta-level controller. The popular misconception that DNA is the sole determinant of disease, health, and physiology can be attributed to the linear, deterministic understandings of causality (Juarrero, 1999). No one event or object represents or even determines the totality of an identity; rather, it is the coordinated relations between other agents, participants, cells, and so on that make an identity one thing and not another (Juarrero, 1999). What makes an identity one thing or another is also wrapped up in an observer’s position of making distinctions.

Such distinctions and criteria shape how we signify an identity. We frequently identify something as being inextricably linked to a fixed object or state. The body, which recycles all of its cells every seven years, is still identified as a self, even though the actual cellular material that make up the body are different, having been renewed through a pattern of coordinated interactions between bodily systems. If I were to lose a toe, would I lose my identity? Francisco Varela (1991) asked a similar question: “What do the cells that make up my body now have in common with the cells that will make up my body in, say, seven years?” (p. 65), to which he answered “And, of course, the question contains its own answer: what they have in common is that they both make up my body and therefore make up some kind of pattern through time that is supposedly my

self" (p. 65). What it depends on is signifying an identity and the criteria of identity. Varela stated:

> For something to be the same (to have some kind of invariant pattern or form) it must suffer some change, for otherwise one would not be able to recognize that it had stayed the same. Conversely, for something to change there must also be some kind of implicit permanence that acts as a reference point in judging a change has occurred. (p. 65)

The next questions then become: How to demarcate the edges of those patterns of activity? How can we describe a boundary that is bounded yet porous enough to be able to make distinctions? Juarrero (2002) characterized the boundaries of identities of complex dynamic systems as looking more "like bramble bushes in a thicket than like stones" (p. 103). Complex systems are bounded and have an operational closure, a coherence that distinguishes them from the context which they are embedded within and engaged with. Important to point out is the fact that distinguishing a complex system from a context does not separate it into discrete elements; rather, it identifies it as a distinguishable pattern of activity.

Returning to the network structures of complex systems, we are able to see that networks are never context-free; rather, they are embedded in a context, and what is usually used to distinguish the identity of one network from another is not its boundaries but the strength of its links (Watts, 2003). In social relations thought of as network structures, individuals choose to participate in contexts which gives form to the identity of the context, for example, a common interest group. The contexts that individuals are associated with through activity shape their own identities. Here the metaphor of brambles becomes appropriate: associations are overlapping, tangled, and intertwined, and supporting each other in an environment; yet one bramble does not support another through the bifurcations in the branches. To distinguish one bramble from another we would need to pull them apart. Yet the bramble bush is also contingent on the soil, water table, and myriad other factors that support its ability to be a bramble bush. This same metaphor can describe complex dynamic systems, no matter the scale: from bodily subsystems to students and teachers in an art classroom. Enacted in a time and place, our identities are bound to each other.

NEW MEDIA AND IDENTITY

Contemporary art and new media employ a relational aesthetic to reshape those perceived boundaries of the self in knowing (Bourriaud, 1998; Hansen, 2004). This is

what new and social media do in the construction and performance of an identity. In our digital spaces and places, our activities are now recorded as *flecks of identity* (Fuller, 2005). In all of our online activity we create a record that is traceable. Fuller defined flecks of identity as

> variables and events. From the perspectival scale of such systems, life is a trail of triggers and tokens: date, time, location, status, speed, choice, amount, accomplices. Surveillance, not simply as eyes, but rather as a processual dynamic of composition occurring in and as a phase space, occurs not just in space, but in history. (p.148)

When aggregated, the flecks of identity that we create through our online activity could be interpreted as both an online and offline identity. Fuller (2005) used a hypothetical example of being pulled over for a minor driving offense. When police check your records against an online database they are also looking for those who exhibit the probability of committing future crimes. In a possible future, police officer's department may have access to commercial databases that have tracked all of your download and Internet viewing habits, your social networking activity and associations, profile pictures, emails, television viewing and movie rental habits, to construct an identity of you. Say, for instance, you watch race car driving, view race car Web sites, download videos about evasive driving, and have even purchased radar detectors. The police officer who pulls you over will have a pattern of activity from which she or he can make a decision either to write you a ticket or to give you a warning. Fuller went on to describe how the prosecution in a court case might present this data to a judge as a pattern of activity that suggests future driving offenses might occur. The obvious danger here, Fuller argued, is that flecks of identity could come to supplant a citizen. Soon, participants in digital activities will be identified, classified, and judged through those flecks of identity. Patterns of activity online are observed, described, and classified into identities just as are offline places; the difference is that there is now a searchable history of activity in which a pattern can be more clearly traced. Every time we go online, we are creating a patterned identity through our looking and posting of images, texts, and videos. A whole web of associations is drawn and subject to interpretation when distinctions are made about what makes one identity different from another.

The understandings of space, place, identity, and complex systems described here offer a theoretical framework for interpreting the activity, knowing, and learning in the social network used in this study. They are also helpful in describing the identity of this

collective of artists inquiring through this place of the social network. I have described the scaled and nested qualities of complex systems, conditions, and characteristics of emergence; the structures and dynamics of networks; and space, place, and identity. The third section of this chapter describes *constraints that enable landscapes of possibility* and the insights they offer to the design of this art curricula and to the enactment of pedagogy.

LANDSCAPING A PLACE OF POSSIBILITY

Attending to the interactions, interconnections, and histories of complex systems does not necessarily enable emergence. Here, I articulate that art curricula need to enact context-sensitive constraints in order to enable complex emergence. I highlight two scales at which an art teacher can enact context-sensitive constraints. Firstly, they can design and enact context-sensitive constraints that prompt a reshaping of interpretive frames through artistic inquiry. Secondly, they can conceptualize the teaching of art as a kind of consciousness between individuals and emergent collective knowledge systems. I now describe these two features and their influence on the art curricula and pedagogy enacted in this study by using Juarrero's (1999) understanding of causality in complex dynamic systems as shaped by context-sensitive constraints.

CONSTRAINTS: CAUSALITY IN A COMPLEX DYNAMIC SYSTEMS VIEW

A complex systems view of cause enables us to think of the project of transformation and emergence differently in art education. Through an understanding of human behavior, at the level of individual and social, as influenced by context-sensitive constraints, art curricula and its enactment with art pedagogy can transform a landscape of possibilities. In chapter two, I described how knowing is effective action in the space between prior and possible actualities. It is in this space, where interpretive frames are enacted to shape and guide action through a possible actuality, that art curricula and pedagogy can act, both at the scale of individual and collective.

Complex systems are those phenomena that cannot be explained in simple Newtonian mechanics or through efficient cause. Complex systems arise from individuals' dynamic interactions that result in an interdependency among the individuals, and that give rise to possibilities for action and patterns of activity not available to the individuals separately. This is different from causality, understood as atoms crashing into each other. In complex systems, nonlinear feedback loops through the different scales of organization, creating an inter-scale causality through constraints (Juarrero, 1999). Higher scales of

organization exert a level of causal influence over its constituent parts, and vice versa. This is not efficient cause, in a linear sense, but a recursively elaborative process made possible through feedback loops. Constraints are “relational properties that parts acquire in virtue of being unified—not just aggregated—into a systematic whole” (Juarrero, 1999, p. 133). One could say that the constraints of *Learning To Love You More* reorders those relational properties in how individuals came both to relate with their local contexts and to interact online to create a dynamic system.

Relational properties simultaneously constrain the possibilities available to a system and open up new possibilities. Through the limitation of possibilities, coherence can emerge. In other words, complexity is not possible without constraints. Juarrero (1999) stated that “a situation of complete randomness where alternatives are equiprobable you could say anything but in fact do say nothing” (p. 133). Having a topology or landscape of equal possibilities, is equivalent to a state of equilibrium. It is like the hiss of static, a wall of equal probability of a meaningful message, which ends up being meaningless.

In creating a landscape of possibilities, prior actualities must be referenced because without such there can be no possibilities for future action. It is a constraint that is context-sensitive, because the history of a complex system shapes its future possibility interdependently with the context in which it is embedded. Maturana and Varela (1992) described this as *structural coupling*. Structural coupling occurs when there is a “history of recurrent interactions leading to the structural congruence between two (or more) systems” (p. 75). The interactions between an individual and her or his environment constitute a history of interactions consisting of reciprocal perturbations. This inefficient feedback loop of causal influence is present within bounded complex systems. Descriptions of causal influence cannot be limited to perturbations from one source to another; they must also consider reciprocity. Maturana and Varela (1992) stated that in “these interactions, the structure of the environment only triggers structural changes in the autopoietic unities (it does not specify or direct them), and vice versa for the environment” (p. 75). This understanding is incorporated into the design of this study’s curricula in art.

Other questions that informed this design were: can an art assignment, prompt, problem, or question of inquiry reference the embodied histories of students while prompting new interpretive possibilities? Is there room for the art assignment to be equally moved and shaped through a reciprocity with the students as they inquire through art? Can an art

curriculum reciprocally engage with students' inquiry? It is not just about an art curriculum and pedagogy that blindly follows participants' interests; nor does it impose a rigid expectation for what art inquiry is. Rather, it is a reciprocal interrelationship between curriculum and participant.

TOPOLOGIES OF POSSIBILITY LANDSCAPES

Here, I will develop the metaphor of landscape elaborating on the ideas presented about virtualities and possible actualities. Juarrero (1999) used the landscape metaphor to describe a space of possible action available to a complex system. She did this through the idea of *attractors*, which for complex dynamic systems are the "trajectories that converge on typical patterns" (Juarrero, 1999, p. 152). While there are many types of attractors, I would like to focus on complex ones. *Complex attractors* describes patterns of interaction "so intricate that is difficult to discern an overarching order amid the disorder they allow" (Juarrero, 1999, p. 155). This means that although complex attractors exert a *pull* towards a probable patterns of interaction, they are *wide* enough to allow for a high degree of local fluctuation. These intricate patterns of interactions that at one scale seem chaotic and complicated, but that at a different scale form a discernible pattern of activity—an identity.

Take the idea of attractors and overlay it onto a landscape. The shapes that are carved out of a landscape are considered *basins of attraction*. Like a geographic feature, a basin of attraction functions the same way as does a physical one, by pulling patterns of interactions toward it, like flows of water or wind. In this sense, however, the attractor is not gravity but the shape of the basin itself. Topologically speaking, the ridges, cliffs, and mountain ranges separating these basins are termed as *repellers*. Sharp peaks or saddle points are what lower levels of organization in complex dynamic systems avoid. The steeper the walls that a basin of attraction carves in the landscape, the less likely it is that the system will change its behavior to another trajectory.

It is important to understand the limits of this metaphor, and to modify it to represent the dynamics of complex systems. Landscapes that we experience are usually perceived on a time scale that renders them practically immobile. Avalanches, tsunamis, and other catastrophes are obvious exceptions. Possibility landscapes are dynamically shifting and overlapping. Our possibility landscapes change as we move through them, sense them, and adapt to them. Our basins of attractors change as contexts change through our movement. Perceptions consist of perceptually guided action, and structures of knowing

emerge through recurrent patterns of interaction. In the process of recurring interactions and relations, we perceive that which is *in front of us* through creation of a landscape of possibility. Our landscapes are not flat; they are shaped by the contexts in which we are embedded and by our embodied histories. They change as we move through them.

Drawing from the field of artificial intelligence, Juarrero used the example of *clean-up units* to describe the adaptive abilities needed to navigate a possibility landscape. Clean-up units monitor the effectiveness of perceptually guided actions. They also modify, or constrain, the range of perceptually guided actions that are taken by a complex system.

Possibility landscapes have many scales, such as neurological, biological, psychological, social, cultural, and environmental systems. All of them play a role, embodying a history that plays out, interacts, conflicts and shapes each other. At the scales of individuals and collectives in our art classrooms, we enact possibility landscapes that are fine-grained, which means they have a diverse range of histories, and yet shared through a specific and patterned interaction. In a landscape of possibility, it is at the scale of the individual and in between the individual and collective knowledge systems that teachers can act—by pointing out new possible basins to individuals and those of the collective.

CONSTRAINTS THAT ENABLE IN ART CURRICULA

Constraints that enable in art classroom contexts (Castro, 2004, 2007) are questions, prompts, occasions, or events that reference embodied histories so that individuals can recognize and be moved by them. Constraints that enable are articulated by Davis and Sumara (2006) as

> structural conditions that help to determine the balance between sources of coherence that allow a collective to maintain focus of purpose/identity and sources of disruption and randomness that compel the collective to constantly adjust and adapt (p. 147).

Context-sensitive constraints create spaces that can orient and enable artistic inquiry. Doll (1989) described the qualities of a constraint that enables in the context of a sixth-grade mathematics classroom as something which had “enough of a burr to stimulate the students into rethinking their habitual methods but not so much of a burr that reorganization would fall apart or not be attempted” (p. 67). Questions and prompts can take on an existential quality by asking for a reconsideration and reshaping of accepted

understandings and by inviting elaboration and extension through art inquiry (Castro, 2004).

Juarrero (1999) stated that “context-sensitive constraints are thus the causal (but not efficiently causal) engine that drives creative evolution, not through forceful impact but by making things interdependent” (p. 150). Context-sensitive constraints enable interdependence between individuals and embodied histories. Kathryn Hayles (2001) described constraints in her classroom as limiting metaphors in her teaching.

> [C]onstraints act in dynamic conjunction with metaphoric language to articulate the rich possibilities of distributed cognitive systems that include human and nonhuman actors. Neither completely constrained nor entirely free, we act within these systems with partial agency amid local specificities that help to determine our behavior, even as our behavior also helps to configure the system. We are never only conscious students, for distributed cognition take place throughout the body as well as without; we are never texts, for we exist as embodied entities in physical contexts too complex to be reduced to semiotic codes; and we never act with complete agency, just as we are never completely without agency. (p. 158)

What Hayles so elegantly described is that our agency is never complete, yet never absent, and that those constraints which limit our activity in biological, social, cultural, and ecological systems are also a source of our individual and collective possibility. In our art classrooms, constraints are abundant—from desks to school bell schedules. The opportunity is in those constraints that we can effect.

The kinds of constraints that we can enact as art teachers are what Juarrero termed second-order constraints, which are top-down in that they impose a certain level of causal influence on the individual and on the collective. The scale where we enact these second-order constraints is two-fold. First, it is at the scale of an individual. We can enact *context-free* constraints, meaning that we impose constraints that are not sensitive to the context where they are enacted. Context-free constraints close off any openings for the embodied histories and local knowledge of individuals outside of schooling. Such enactment involves imposing an order on an individual so that they conform and adapt to the conditioning of the constraint. Meaning is usually found at the level of performing as a good student. Context-free constraints are usually characterized through a convergence on pre-existing points of knowledge. Juarrero used the image of a

pendulum coming to rest at a single point or at its attractor to describe context-free constraints.

On the other hand, context-sensitive constraints are an occasion for prior possibilities embodied by individuals and collectives to be enacted, extended and elaborated. It is a reshaping of interpretive frames, enacted at the scale of individual and collective. At the level of the individual, it asks for a reconsideration and reordering of interpretive frames that are dependent on prior actualities. It is an act of enabling individuals to enter into a spaces of uncertainty, to encounter the limits of their knowledge, and to be able to reorganize previous understandings and interpretive frames into new patterns of knowing about themselves in the world, as part of the world. Art curricula can be a space for the reshaping of the contours of enacted interpretive frames, in between a space of prior and possible actualities through artistic inquiry.

ART TEACHER AS A CONSCIOUSNESS OF THE COLLECTIVE

The second scale at which a teacher can act is in between individuals and the collective knowledge system. As individuals enact and reshape their possibility landscapes, through the reshaping of the contours of interpretive frames, they become interdependent—a knowing system. As Hayles described, individuals act amid local constraints, both shaping and being shaped by the enactments of each other's possibility landscapes. This gives rise to a collective knowledge system. It is between the dynamic interactions of an individual and collective knowledge system that a teacher can act as a of consciousness of the collective (Davis, 2005).

Conceptualizing the teacher as a consciousness is not about conceptualizing him or her as a controller; it places the teacher in the networked collective rather than outside or above the dynamic network of relationships. There is no "God's-Eye" position here, because there are limits to the conscious awareness that individuals can enact. Recalling the assertion of Cilliers (1998) that individuals in a complex system cannot know nor control the whole of a complex system means that a consciousness of a collective cannot be aware of everything all of the time. In these terms, consciousness is considered both a commenter and an organizer of a collective knowledge system (Donald, 2001; Nørretranders, 1998). Thought of this way, teaching "is not about prompting a convergence onto pre-existent truths, but about divergence into new interpretive possibilities" (Davis, 2005, p. 87). In this definition, the art teacher's position is fluid in relation their own beliefs and knowledge, to art curricula, and to students. This

enables an art teacher to participate within these possibility landscapes as a consciousness. This is possible through teaching that attends towards themes and knowledge that are emergent in the collective.

Context-sensitive constraints here are informed by the teacher's awareness of those enacted possibility landscapes and the basins of attraction, and of how they come to shape a dynamic knowledge system. By acting as a consciousness (Juarrero, 1999), an art teacher can attend to knowledge in the collective by connecting, contrasting, emphasizing, and feeding insights back into the collective about what the topography of the collective's possibility landscape looks like. It is a type of context-sensitive constraint, one where certain interpretive possibilities are fed back into the collective knowing system for further elaboration. The act of feeding back into the collective knowledge system is not one that is unbiased. Art teachers embody subjectivities (Grauer, 2007), an embodied history of structural changes. This plays a critical role in shaping a possibility landscape of the collective knowledge system. What a teacher points out, what connections are emphasized, what spaces and prompts are designed and enacted, are all from a specific interpretive frame. It is important not to apologize for this subjectivity, but rather understand that we are complicit in the shape of a collective's knowledge system landscape of possibility.

A landscape of possibilities in art curricula is a space of emergent possibilities. It is enacted through inquiry in art. Context-sensitive constraints enable the emergence of new patterns of coherence; in other words, they re-sculpt the contours of interpretive frames in a space of knowing. A collective of knowers inquiring and interacting in dynamic, rich, nonlinear ways gives rise to an interdependent knowledge system. The activity of individual artistic inquiry, through interconnections that constitute decentralized and recursively elaborative feedback loops, gives rise to a dynamic system of collective knowledge. Art teachers can act through the design of art curricula that enacts context-sensitive constraints, to enable inquiry into prior actualities to shape new possibilities. Art teachers can also act in between individuals and the collective knowledge system when they act as a consciousness by pointing out spaces for new interpretive possibilities. My role in teaching art, in this study, was an attitude of attending to, pointing out, connecting, and sculpting a landscape of possibility.

SUMMARY

In Chapter 2, I presented art curricular and pedagogical possibilities for inquiry through new and social media. Specifically, I described the qualities of certain contemporary new media artworks and their use of relational spaces to extend the knowing body. This is a way to conceptualize curricular and pedagogical possibilities for art education and new media. Responding to Sweeny's (2008) questions for art education and complexity, I developed the understandings of knowing through new media and the reshaping of relational spaces through complexity thinking. Complexity thinking not only provides a way of conceptualizing designs for art curricula and enactments of pedagogies in art, but also articulates the epistemology of this dissertation. This is important when entering into discussions of methodology.

In Chapter 5 I examine the many types of constraints used in this study, how they were enacted, my own subjectivity, and the emergence of a collective knowing and knowledge system. In the next chapter I present a description of the design-based methodology used in this research study.

CHAPTER 4: DESIGN-BASED RESEARCH

In this chapter I outline the methodology used in this study. Specifically, I state why I have chosen design-based research (DBR), define how it is used in this study, trace some of its history, and explore its epistemological tensions with complexity thinking. I describe the procedures of this DBR study. I then describe the sites of this research, both online and offline, and why they were chosen. I also introduce the participants of this study. I conclude the chapter with a description of data collection techniques, ethical considerations, and an analytical framework for interpreting the collected data.

WHY DESIGN-BASED RESEARCH?

DBR was chosen to inquire into learning at the intersection of a contemporary new media art-inspired art curricula and pedagogy, complexity thinking in art education, and new and social media. This involved the conceptualization, theorization, and design of an inquiry-based art curriculum and pedagogical approach, enacted through new and social media.

What makes DBR important to this study is that methodologies such as participatory action research and virtual ethnography did not provide a way to address the use of an educational design—although their traditions and methods were drawn upon.

For example, DBR and participatory action research share the characteristic of collaboration between researchers and participants. Participatory action research is about examining local context and practice systematically to improve both theory and practice (Macintyre, 2000). However, DBR differs from participatory action research in that it researches a *designed* learning innovation. Whereas some participatory action research aims to improve local practice through participant-led research, DBR aims to do so through the introduction of designed innovations (Wang & Hannafin, 2005). Design innovations for education are refined jointly with and through participant practice. For example, these innovations can take the form of a curriculum, pedagogical strategy, or learning technology.

Ethnography, the writing of a culture, is also drawn from and used in this study. Alone, it cannot account for the scope of a researcher's intervention in the form of an educational innovation. Where ethnography is useful in this study is in its acknowledgement that any writing of a culture is a collaborative effort (Lassiter, 2005). The actions and descriptions

of an ethnographer, and for that matter any researcher, become a part of a larger system of relations in which knowledge is created.

DBR is important for this study because as a research methodology, it attempts to support theories of learning stemming from “active innovation and intervention in classrooms” (Kelly, 2003, p. 3). This differs from educational research methodologies centered on “*confirmation* (e.g., those that apply grammars such as Fisher’s randomized trials to educational variables with measurable variance)” and “dialects (particularly those influenced by the grammar of ethnography) that support rich *descriptions* that illuminate arguments about processes” (Kelly, p.3). Kelly (2003) articulated that grammar of DBR is instead “generative and transformative. It is directed primarily at understanding learning and teaching processes when the researcher is active as an educator” (p. 3). Joseph (2004) stated there are “three important, deeply intertwined goals for design-based research projects—research, design, and pedagogical practice” (p. 235). Researchers who employ a DBR methodology want to learn more about learning through specific design innovations in education. These articulations of DBR make it a good fit for a research study such as this one, which involved a designed curricula and enactment of a pedagogy in response to and with participants through new and social media.

DEFINING DESIGN-BASED RESEARCH IN THIS STUDY

DBR was born out of a need to understand both learning and how innovations could be developed from those understandings. There have been many definitions of DBR as it is taken up in a variety of research paradigms, from cognitive science (Sandoval & Bell, 2004) to medical education (Dornan, Hadfield, Brown, Boshuizen, & Scherpbier, 2005). It has been described as *design research* (Edelson, 2002), *design experiments* (Collins, 1992), *development research* (van der Akker, 1999), *developmental research* (Richey, Klein, Nelson, 2003), and *formative research* (Reigeluth & Frick, 1999). All variations share common characteristics of designing, implementing, and theorizing educational innovations.

The following is a discussion of the characteristics of DBR that are highlighted for use in this study. There are some omissions and modifications here, which will be addressed in the section below which is titled Epistemological Tensions. The characteristics of DBR that are emphasized here are described as interventionist, theory-driven, pragmatic, contextual, iterative, collaborative, and integrative (Barab & Squire, 2004; Barab,

Thomas, Dodge, Squire, & Newell, 2004; Design-Based Research Collective, 2003; Collins, Joseph, & Bielaczyc, 2004; Edelson, 2002; Wang & Hannafin, 2005). As an interventionist process, it seeks to enact theories of learning as an in-between space, which is neither schooling nor outside of schooling. As a theory-driven methodology, DBR seeks to refine theoretical claims and insights through analysis and interpretation of the collected data. As a pragmatic methodology, it values useful contributions to theory and practice. The design of the curricula, pedagogies, or technological interface are woven into the contexts, or real-world settings with the researcher as co-participant.

DBR, as an iterative process, is enacted as series of feedback loops. Curricula and pedagogical practices are enacted. Ethnographic observations are reflected upon. Participant feedback and responses are analyzed, and modifications are made in the next iteration. Rather than functioning as an extended analysis, iteration is an act of re-researching conjectures of learning (Confrey & Lachance, 2000; Sandoval, 2004). As an integrative process, it utilizes methods from many traditions of research, such as virtual ethnography or action research, to create robust and rich descriptions for analysis and interpretation. As a collaborative process, it seeks to gain insights into the designed and enacted innovation from the perspective of participants.

These methodological adaptations are a way to address certain epistemological tensions in DBR as it is enacted within a complexity-thinking framework. I now trace a brief history of DBR and a few examples of it in action. I want to point out that although terms such as *reliable, transferable,* and *repeatable* are often used in the description of DBR's history and enactment, they do not reflect the epistemology of this dissertation. This brief history and account of DBR in educational research is a way of providing a background to the source of these tensions when it is coupled with an epistemology of complexity thinking.

HISTORIES OF DESIGN-BASED RESEARCH

DBR emerged in the early 1990s alongside of and somewhat through the development of the field called the *learning sciences*. The learning sciences were an offshoot of cognitive science, as a response to "neat" laboratory research (Kolodner, 2004). Ann Brown (1992), originally a clinical cognitive psychologist, described the need to leave the laboratory, with methodology in hand, to address the complexities of learning in the real world. Brown (1992) described her methodological goal as one of engineering design experiments which "work toward a theoretical model of learning and instruction rooted in

a firm empirical base" (p. 143). She wished to "engineer interventions that not only work by recognizable standards, but are also based on theoretical descriptions that delineate why they work, and thus render them reliable and repeatable" (Brown, 1992, p. 143).

Working concurrently, Collins (1992) designed experiments that were modeled after the fields of artificial intelligence and aeronautics design. As laboratory methodology was moved into the field, there was a hope to come closer to articulating a theory of learning that was accurate to real-world contexts. As design experiments, ranging from curricular interventions to digital technological interfaces, were situated in the field it was believed that more accurate, reliable and transferable theories of learning could be described. Transferring and adapting the traditions of laboratory-based experimentation, researchers in the learning sciences believed that it had a methodology to support the intertwining of biological/neurological brain research, informal/situated learning, and formal learning (Sawyer, 2006). As taken up and developed by the learning sciences, DBR can be said, then, to engineer innovations that hold specific theories in teaching and learning and in turn, to further refine those theories of learning.

ENACTMENTS OF DESIGN-BASED REARCH

I will now summarize three enactments of DBR: one that was a designed curriculum, a second that was a curriculum and online multi-user game, and a third that was an online art teacher professional development project. All three offer examples of the different ways that similar characteristics of DBR can be enacted. What is important here is how the epistemological position is enacted in the design and research.

Joseph (2004) described a DBR study titled *The Passion School Project*, in which the learning environment was organized by students' interests rather than by their ages. Theories of learning enacted in her design included goal-based scenarios (GBS) and cognitive apprenticeship. Joseph (2004) defined GBS as a curricular model that places learner goals at the center of a design, and used cognitive apprenticeship as a way to create a socially supportive learning environment. The researchers chose the theme of flight for the curriculum, something the researchers believed would be interesting, to teach students in an urban summer education program. Joseph reported that the initial results were disappointing due to the lack of student engagement with the theme. Through analysis conducted after the enacted curriculum, the research team decided to choose a theme that was relevant to the participants. On the next iteration, Joseph and her team observed the participants beforehand to get a sense of what their interests

were. In addition, instead of running a curriculum that was a series of short lessons, the team implemented a seven-week extended inquiry. Joseph concluded that design-based researchers operate and act with conjecture. Learning designs—curricula, pedagogies, and learning technologies—all embody conjectures of learning (Sandoval, 2004). Joseph (2004) stated that in

> some research paradigms, the proper role for research would be to tease out the power and relative weights of these factors in causing the phenomenon of interest. In design research, we have another option—to treat all of these paths as simultaneously productive for design. (p. 237)

In other words, the way that Joseph addressed the design research was to develop tentative conjectures to inquire into the next iteration. Analysis is embodied in the iteration.

In another example of DBR, Barab, Thomas, Dodge, Carteaux, and Tuzun (2005) designed a multi-user virtual environment named Quest Atlantis. The curriculum included activities such as contributing narratives, ideas, and information about the virtual citizens of Atlantis. It was designed to engage students in learning about science and social studies, and to foster an overall enthusiasm for learning in school. The design embodied Vygotsky's (1978) theories as they pertain to learning, specifically those around learning and play (Barab et al., 2005). Also considered in the design was the possibility of students creating social change as they became emotionally involved in the game's narrative. It was hoped that students would transfer affective social engagement with the narrative of a city in peril, into the students' own local environments. The goal of Barab et al. in using DBR was to develop theory in practice, to "lead to interventions that are trustworthy, credible, transferable, and ecologically valid" (p. 92). They went on to state that "[o]ne no longer simply designs an artifact to deliver predefined content or to support a process in which the final product is already known" (ibid.). It is in a process of iteration that DBR, as conceptualized by Barab et al., is socially responsive. It supports change in one specific context as embodied in the educational design. This design is then taken and integrated into other contexts.

DESIGN-BASED RESEARCH IN ART EDUCATION

Art education researchers are also beginning to employ design-based research. One example is a study of secondary art teachers using an online environment to teach for transfer in the complexities of online and offline art education (Erickson, 2005). Mary Lou

Erickson (2005) defined transfer as “what happens when learners are able to recall information and use it appropriately in new situations” (p. 170). Closely following a definition of DBR as articulated by The Design-Based Research Collective (2003), Erickson (2005) described her goals as “the design of a learning environment that integrates online and traditional instruction and the identification of research issues to guide the refinement and elaboration of transfer theory” (p. 171). The project was an online curriculum that was designed to meet the needs of a variety of art learning contexts. Called *Who Cares for Art?*, the curriculum was centered around Luis Jimenez's public sculpture titled *The Southwest Pieta* (Erickson, 2005). There were four lesson activities. The first activity was called the Treasure Box Track. It asked students to transfer what they had learned about the theme by applying it to a personalized treasure box. The second activity was called The Inquiry Track. It asked students to transfer what they had learned through the online curriculum by writing a term paper on an artwork of their choosing. The third activity was less intensive, and was called My Viewpoint Track. This activity asked students to “reach their own conclusions about Luis Jimenez's Southwest Pieta” (Erickson, 2005, p. 173). The fourth activity called The Studio Track, asked students to “reflect on their previous art-making experience (ibid.). The design and research was over a three-year time span during which the teachers pre- and post-tested the design to assess student learning and transfer of concepts and themes. To optimize student learning, it was further refined each school year. Erickson admitted that although the instructional design was optimized and improved with each iteration, the research “raises more questions than answers” (p. 182). This is a salient characteristic of DBR. Whether at the scale of weekly cycles or of yearly cycles, DBR refines insights while also raising new questions.

The epistemology that underlies each of the DBR studies discussed above is characterized by a particular attitude towards knowledge, which implicated a theory of learning. Understandings of learning as “taking things in” and as the ability to transfer that knowledge in a new context are epistemologically aligned with DBR as just described. Yet, when DBR is used through a complexity-thinking based understanding of knowing and learning, all sorts of tensions arise. I address these below.

EPISTEMOLOGICAL TENSIONS

The epistemological beliefs enacted by researchers strongly influence what is considered a design in DBR. Terms such as: *reliability*, *transferability*, *repeatability*, *generalizability*, and *accuracy* all point towards an epistemology that shapes many

enactments of DBR. However, there is no consensus on the epistemology of educational research in DBR (Dede, 2004). This has led to a crisis in DBR, of what is and is not considered knowledge. Rourke and Friesen (2006) contended that most DBR straddles positivist/post-positivist and interpretive research paradigms. They highlighted the tension that, in most enactments of DBR, comes from the learning sciences, pointing out that "learning and education are inescapably interpretive activities that can only be configured rhetorically rather than substantially as a science" (Rourke and Friesen, 2006, p. 271).

Dede (2004) would probably have placed Rourke and Friesen at one end of the epistemological spectrum, towards an inter-subjective position. An inter-subjective position is one that treats reality as something that is co-constructed in discourse and interpretation. It contrasts with scientific objectivism and positivism. Dede described how this could be enacted in two possible DBR research studies.

> ...those who lean toward an objectivist point of view tend to prepare DBR participants to function like astronauts: trained to execute detailed contingency plans that pre-specify responses to various situations that may emerge in implementation. In contrast, investigators inclined towards subjectivism see specific individual and social factors overwhelming the contingency plans of a standardized curriculum, instruction, and management strategies, instead preparing DBR participants to function like physicians who can invent as needed (p. 110- 111)

Issues of epistemology are important to any methodology in qualitative educational research (Denzin & Lincoln, 2003). In Chapters 2 and 3, I have outlined my epistemological position through a theorization of knowing through new media and complexity. These theorizations of knowing and knowledge are key to this study's enactment of DBR.

RESPONDING TO THOSE TENSIONS

Epistemology is a theory of knowledge: its characteristics and qualities. Instead of understanding knowledge as *subjective*, *objective*, or *inter-subjective* interpretive frames, complexity thinking understands it from an *inter-objective* one. This is an attitude enacted in research that "is not just about the object, not just about the student, and not just about social agreement. It is about holding all of these dynamic, co-specifying, conversational relationships while locating them in a grander, more than human

context" (Davis & Sumara, 2006, p. 15). It is considered to be a kind of hybrid of intersubjectivity and objectivity (Davis & Sumara, 2006). In an *inter-objectivity* epistemology, there is no such thing as knowledge "out there," or knower-independent knowledge. There are no observer-less observations, or measurements without a measurer. Our descriptions of ourselves as researchers, of ourselves in the world, and of the world itself operate in a linguistic domain that is also a part of our world. Maturana and Varela (1992) stated:

> the linguistic domain becomes part of the environment in which linguistic coordinations take place, and language appears to an observer as a domain of descriptions of descriptions. But what an observer does is precisely this: he makes linguistic distinctions of linguistic distinctions, or what another observer would say are ontogenically generated descriptions of descriptions. (p. 211)

As humans, we do not exist outside of language and the language of our distinctions, because perceived phenomena and our knowledge of those phenomena shape the phenomena as our descriptions of our distinctions change. Simply, our descriptions are a part of the world and they change the world while shaping our perceptions (Davis, 2004). Varela (1999) stated that "local situations will constantly change as a result of the perceiver's activity" (p. 12). This places the descriptions of the perceiver as shaping a perceived, not as an act of describing and recovering a world already out there, but as dynamically implicated in the dynamics of a world. In other words, our perceptually guided actions and descriptions shape a world through our being in a more-than-human world. What happens is that as our descriptions change, our actions change, and as a result, so does our world.

The understandings of knowing, knowledge, learning, and teaching represented thus far shape an epistemology of this DBR study. They are reflected in how this DBR is defined by shifting words such as "testing" to "inquiry," from "transfer" to "co-specified," and from "verifications" to "descriptions" and "interpretations." DBR does have much to offer as a methodology for complexity-thinking research. This is implied by Kelly in his (2003) introduction to the special issue on DBR in *Educational Researcher*:

> Educational researchers use the tools of science to construct a professional language within the field of education. They use this language to generate distinctions and descriptions for the system. The distinction and descriptions themselves and interventions designed from them make the system's actions

> relevant to its own evolution and improvement (cf. Maturana & Varela, 1987). (p. 3)

Complexity thinking "compels researchers to consider how they are implicated in the phenomena that they study and, more broadly, to acknowledge that their descriptions of the world exist in complex (i.e., nested, co-implicated, ambiguously bounded, dynamic, etc.) relationship with the world" (Davis & Sumara, 2006, p. 15). Methodologies that fold in the messiness of context and a researcher's interventions, through descriptions, complement complexity thinking (Phelps & Hase, 2002; Sumara & Davis, 1997). Again, complexity thinking's "principal orienting question is neither the fact seeking 'What is?' nor the interpretation-seeking 'What might be?', but the practice-oriented 'How should we act?'" (Davis & Sumara, 2006, p. 25). It is this research attitude that is echoed in Kelly's (2003) statement above; as educational researchers, we are aware that our descriptions and actions are complicit in the knowledge that is enacted. About this, Barab and Squire (2004) stated that "Design-based researchers are not simply observing interactions but are actually 'causing' the very same interactions they are making claims about" (p. 9). This is where DBR's contributions to complexity thinking play out, from the inter-subjective to inter-objective as we consider the range of phenomena implicated in research. In this study, for example, it was not just a design intervention of a curriculum and pedagogy of relations; it was also an interrelationship with a knowledge system, through new and social media, where DBR became most useful. Its utility resides in its capacity to address individuals, context, curriculum, pedagogy, and technology as it related to the inquiry around a particular design innovation. I now describe the particular procedures of how this conception of DBR was enacted in this study.

OVERVIEW OF PROCEDURES

I account for the procedures in this study not to suggest that a perfect replication of this study could be enacted; rather, I do it to make clear my own subjectivities and processes. This is not only my reflexive positioning as a researcher, but also as a teacher and artist. Doing this has value because it is a way of understanding a complex contemporary new media art curricula and pedagogy. This also provides a distinction between my own pedagogy and the pedagogy that occurred between the design, participants, social network, images, dialogues, and knowledge system.

INTERVENTIONIST

DBR is an *interventionist* research methodology. The roots of the word *intervene* come from the Latin *intervenire*, meaning 'come between.' This characteristic of DBR is conceptualized here as Wilson's (2008a) third-site pedagogy which is neither outside of school nor inside, but somewhere in-between. This conceptualization is quite appropriate for a social network site to enact a complex contemporary new media art curricula and pedagogy. The constraints that enabled—questions, prompts, and media—all pointed towards the margins of schooling, asking participants to look closely at the world around them and at the interpretive frames they enacted to engage in their worlds. Drawing from Juarrero's (1999) conception of context-sensitive constraints, I surmised that some direction was needed for inquiry—especially in the beginning of the curriculum. A curriculum with no beginning for inquiry could result in little action or meaning (Juarrero, 1999).

THEORY DRIVEN

The roots of the word *theory* come from the Greek, *theōros,* meaning "spectator". The word spectator, comes from the Latin, *spectare,* meaning "gaze at, observe". Theory frames interrelationships to create understanding through attention and observation. It shaped how the curriculum was conceptualized and pedagogy was enacted. Specifically, complexity thinking and the relational qualities of contemporary new media art informed this curriculum and my pedagogy. These understandings shaped this research, from the methodology, to how the curriculum was enacted, to data analysis.

PRAGMATIC

The word *pragmatic* comes from the Greek *pragma*, meaning "deed", which comes from an Indo-European root shared by "do". Here, being pragmatic is considered effective action. Throughout this research I paid attention was paid to what was pragmatic and what was not; this guided decisions of curriculum, pedagogy, and data collection. It asked: How can we act? This characteristic will also frame whether or not this research is of value to the classroom teacher or researcher: Does it offer insights to effective action for pedagogy, curriculum, and research?

CONTEXTUAL

The word *context* comes from the Latin *contextus*, meaning "weave together". Context creates meaning through the weaving together of many strands. In this research, the sites, time of year, and participants' backgrounds were all part of the context of this

study. Context was considered in the analysis and also in the curriculum. In the curriculum, constraints were context-sensitive, meaning that questions and prompts depended on participants' local knowledge and inquiry. In the analysis, I considered situations that affected participation. For example, when many of the students were on an extended field trip for a week, participation on the site declined.

ITERATIVE

The word *iterative* comes from the Latin *iterare*, meaning "to repeat". The word *repeat* comes from the Latin *repetere*, meaning "seek back". *Iteration* here is used as part of the curriculum, to recursively elaborate from previous participant dialogues and artistic inquiry. It "seeks back" to the knowledge represented on the social network site.

Some DBR researchers contend that to be iterative, projects should be repeated over many contexts (Collective, 2003), while others enact DBR at the scale of shorter, single-case instances (Dornan, Hadfield, Brown, Boshuizen, & Scherpbier, 2005). In this study, the iterative process was enacted in the weekly projects. I had some ideas for the shape of the curricula to begin our study; however, I deliberately refrained from planning a detailed trajectory. Each week, as researcher, educator, and co-participant/artist, I adapted the curriculum and my pedagogy based on the emergent themes and ideas represented in participant dialogues and images. Even the weekly media clips from the film *Euphoria* were edited particularly for each week, based on the collective interests.

COLLABORATIVE

The word *collaborate* comes from the Latin, *collaborare*, meaning "to work together". The curriculum and my own pedagogies were shaped through my interaction with participants. In interviews, I would ask how we could make this site better for both teacher and student participants. I attempted to be someone who would meet their needs and incorporate them into the design of the site and curriculum. For example, one of the student participants, responding to the overwhelming number of images being posted, asked if we could start organizing them into albums. This feature was incorporated into the site's design and became an inspiration for a weekly prompt (see Chapter 5, Week 7).

INTEGRATIVE

The word *integrate* comes from the Latin, *integrat-*, meaning "made whole". As a methodology, DBR integrates methods to create rich descriptions of the curriculum,

pedagogy, and learning in this study. Methods of case study (Stake, 1995; Yin, 2003), image-based research (Prosser, 1998), action research (Phelps, & Hase, 2002; Sumara & Davis, 1997), collaborative ethnography (Lassiter, 2005), and virtual ethnography (Hine, 2000; Lyman, & Wakeford, 1999; Markham,1998) are considered.

CURRICULUM AND PEDAGOGY DESIGN AND ITERATIVE ANALYSIS

The design goals of this study were to theorize and enact, through a social media interface, an inquiry-based art curricula and pedagogy as drawn from the practices of contemporary new media art and complexity thinking. This DBR exploratory study focused on how this conception of curricula and pedagogy could be enacted through new and social media in a public school art learning environment. It was not a specific design of the social network interface used. The social network was designed simply to resemble a hybrid of many popular social network interfaces, in order to reference prior knowledge and provide a sense of familiarity for the participants.

There were three phases to this design; they occurred over a period of 10 weeks. Each week and at the end of each phase I conducted an analysis based on my observational writing, reflections, participant dialogues and images, and whenever possible, on interaction with the participants through formal and informal interviews.

The first phase, comprising four weeks, was focused primarily on reshaping relations with ideas about happiness in our culture and personal lives. I chose this theme because it offered a space to consider a commonly held desire of most people—to be happy—as a beginning for examining individual relations with the world as developed through digital photography and video. Two kinds of context-sensitive constraints were used as a beginning for inquiry. First were the weekly prompts, which were presented to participants at the beginning of each week. Second was the use of the art/documentary film *Euphoria* (Boot, 2008) in Weeks 1 through 4 as part of the weekly projects. *Euphoria* was used as a thematic catalyst to begin the curricular inquiry because research has shown that adolescents engaged in new media practice produce works in response to other new media productions as a way of learning (Jenkins et al., 2007). It was also chosen because the film itself embodies themes and ideas already described, such as feedback, meaning-making, and engagement. In addition, the film was chosen because its creators intended to make a film that would not provide all the answers; rather, it provides a space for further discussion, elaboration, and relation. The open-ended quality of richly conceptualized visual metaphors served as a constraint, coupled with the

weekly prompt that enabled a space to inquire, through art, ideas about self, happiness, culture, family, and social relationships.

Although the Week 1 project was pre-designed, the following weeks explicitly incorporated the knowledge produced from participants' prior responses and dialogues into the next inquiry project. This was the iterative process of this DBR enacted. A design analysis was used throughout to continually update the curriculum, social network, and my own pedagogy. I attempted to realize an adaptive and responsive pedagogy by enacting a teacher-as-consciousness theorization (Davis, 2004). With permission from the film-makers, the *Euphoria* film clips were edited to complement the weekly prompt. The curriculum and pedagogy were designed to be adaptive to the knowledge that resulted from the participants' weekly artistic inquiry. This reflects a relational and complex curricula and pedagogy that not only occasion a reshaping of relations with individuals through inquiry, but is relational and adaptive to the knowing and learning collective.

Drawing from Joseph's (2004) cautionary tale of curricula that do not provoke interest, I analyzed participant interest and response to determine each iterative step from week to week. I had conjectured that if the weekly prompts and video clips reflected the evolving dialogue of the participants, there might be more engagement. As I describe in Chapter 5, by Week 4 interest in the film had waned. Although I had developed, in consultation with the teachers, a Week 5 inquiry iteration that would have stayed with the film, we decided to move onto the next phase. It should be noted that further research into voluntary online communities changed my understandings of participation online. Although this study did not include a statistical analysis, my journal observations noted fluctuating participation rates.

The second phase shifted towards the collective knowledge. The collective knowledge system was represented in the continually evolving and growing dialogues and images that were produced through artistic inquiry. Specifically, the curriculum and pedagogy asked for engagement and further artistic inquiry into the system of ideas that was represented on the social network. Weeks 5 through 7 posed designed constraints focused on inquiry that explicitly attended to each other's images and ideas. It was conceptualized as a group of artists, through new and social media, sharing local interpretations through art, interacting, and being influenced by each other's local interpretations. The aggregation of represented knowledge produced and represented in

our collective images and texts gave rise to broader themes; these, in turn, shaped our local interpretations. The third phase, which lasted two weeks, emphasized an extended individual artistic inquiry into the experience of inquiring with and through a collective of knowers.

This dissertation's sections on data collection and analysis offer further description on the specific methodologies drawn from and data that was used in this study. The study's design and the subsequent insights for knowing, learning, and teaching art through new and social media are also described, analyzed, and interpreted in Chapter 5.

SITES OF RESEARCH

I now describe the sites of research that were involved in this study. This requires a definition of those ethnographic understandings for dealing with *site* in online and offline research. What is used is a networked or connectionist approach—one that treats site as a field of relations (Leander & McKim, 2003; Olwig & Hastrup, 1997). Both the online and offline sites are described, and as is the reasoning for their inclusion in this study.

The word site comes from the Latin *situs*, meaning "local position". Describing the local position of a material research site, such as a classroom, school, or community, is relatively straightforward compared to addressing the site of online research. In online research, this prompts a reconsideration of what is considered site or place in writing a culture. Leander and McKim (2003) strategically adapted the traditional ethnographic notion of site, as a fixed geographic location, to research on the Internet. They drew from Olwig and Hastrup's (1997) conceptualization of site as a *field of relations*. This flexible adaptation is characterized by the relationships, connections, and flows of action between locations and actors. In Internet research, site is more constructed by researchers' descriptions than it is discovered. This reflexivity provides "space for the emergence and creation of new metaphors and linkages, which may lead to new methodological insights" (Lyman & Wakeford, 1999, p. 360). If we understand sites in Internet research as fields of relationships, then how has this phenomena reshaped notions of identity (actors) and action?

Leander and McKim (2003) contended that a major challenge of ethnographic research online is that the authenticity of identities cannot be confirmed. Paccagnella (1997) argued that interactions that he could verify through the ethnographic processes of engagement and immersion were authentic. Hine (2000) countered that this could create

an unnecessary boundary of online and offline practices. Turkle (1995), in *Life on the Screen*, felt compelled to verify all virtual interactions with off-line interviews as a way of triangulating (Denzin, 1989) her findings. However, Lyman and Wakeford (1999) countered that “one must account multiple identities where they are presented to the researcher and to resist the temptation to adjudicate between them by using the real world as a final arbiter” (p. 363). They went on to assert an alternative method to “locate the discussion of this concept in an examination of the identity of the researcher and in the relationships of the researcher to the field of study” (Lyman & Wakeford, 1999, p. 364). Leander and McKim (2003) suggested a connectionist approach to ethnography that examines online and offline worlds. This pays attention to place, space, and embodied experience by tracing activity through these time-space constructs (see Chapter 3 for a review of how space, place, time and identity are treated in this dissertation).

One of the unexpected challenges of this research was the fluidity of identity between offline and online sites. This “culture of knowers and learners” was ethnographically written in a way that was less concerned with verifying authenticity than with the patterns of activity created by participants. Patterns of activity formed coherences created through my interpretive frame and writing. These patterns were not only limited to singular identities, but were also the characteristic qualities of an identity of our collective.

SITES OF THE MATERIAL AND DIGITAL VIRTUAL

This study located the participants and place of this study in a visual arts department, within a comprehensive public secondary school. This was done as a way to understand contexts for using new and social media in schools, as a third-space pedagogy (Wilson, 2008a). Explored throughout this dissertation, engagement with new and social media are considered as rooted in and through the body. There have been many excellent studies on teenage cultural practices in online environments and personal spaces; this study seeks to extend these research projects to include the art classroom (boyd & Ellison, 2007; de Boor & Halpern, 2007; Ito et al., 2008).

VANCOUVER

As a researcher whose educational experiences are rooted in the American educational system, I must emphasize that this study occurred in Canada. Many Americans assume that most Canadians mirror what happens in the United States. This is a deeply

problematic assumption that many Americans, myself included, retain about Canada, especially when it comes to education. Canadian schools are familiar, but this is deceptive—in fact, they differ in important respects. For example, Canada for the most part, has not embraced a high-stakes testing culture like the one brought about by *No Child Left Behind Act* in the United States. However, given the British Columbia Teachers Federation's stance against the Foundation Skills Assessment procedure that is used by the Fraser Institute to rank schools, this may change (Ross, 2009).

PINE SCHOOL DISTRICT

This study was conducted in the city of Alder (a pseudonym) in the Greater Lower Mainland–the area in southern British Columbia around the city of Vancouver. The following description comes from the latest Statistics Canada census data (Statistics Canada, 2006) available at the time of writing this paper. The city of Alder is home to more than 185,000 people in a mixed rural, urban, suburban environment outside of Vancouver. It has seen a significant change in its landscape, which has shifted from rural to urban/suburban. Immigrants comprise more than 57% percent of Alder's population, which is the highest proportion in Canada. Of those who are immigrants, more than 80% are from Asia or the Middle East. A little over half of the entire population speaks English as their first language at home. Overall, Alder residents identify more than 125 ethnic or cultural origins. The most commonly reported ethnic origin in Alder is Chinese, who comprise 45% of the total population. Following Chinese, the most commonly reported ethnic origins are, in descending order: English, Scottish, Canadian, East Indian, Irish, German, Filipino, French, Ukrainian, and Japanese.

The Pine School District (pseudonym) has 10 secondary schools spread over a 130-km^2 area. According to the school district Web site, the district has a graduation rate that is the highest in British Columbia and it supports a variety of school programs outside of core subject areas. The Pine School District has also made a concerted effort to improve technology support and services, such as by providing wireless access throughout all of its secondary schools. One of the reasons the Pine District was chosen for this study was its relative support of research and technology in schools.

OAK SECONDARY

Oak Secondary (pseudonym) is one of the 10 secondary schools in the Pine District; at the time of this writing, its student population is 900. It has Grades 8 through 12 and offers a mini-school as well as culinary arts, automotive, and carpentry programs. Oak

offers wireless Internet connectivity and at least one computer per classroom, including art classrooms.

Oak Secondary's art department offers introductory art courses by grade level. There are also media-specific courses offered in photography, drawing, painting, and sculpture. Oak Secondary does not offer courses in new media such as digital video, Web design, or computer animation. During the period of this study, each of the three art classrooms had at least one computer with Internet access. Adjoining the department chair's art classroom was a multi-use space which was used as a studio by photography students and advanced-level art students. In this space there were four computers connected to the Internet. Although the school site itself would support the technological needs of this study, it was observed and noted in interviews that all participants used their personal home computers to participate on the study's social network.

In the 2006-07 academic year, Oak Secondary's art department began offering the Advanced Placement (AP) 2-D Design Portfolio Exam to students in Grade 12. The two art teachers at that time, Mary Lou and stormy (Mary Lou was a pseudonyms chosen by participants; stormy's lowercase name was self-chosen), indicated that this was their first experience teaching the AP portfolio exam. Prior to this study, I was initially invited to mentor Grade 12 students taking the AP because of my experience teaching AP art courses in the United States. I chose Oak Secondary for this research because there was an already established relationship of trust; because the Pine District demonstrates support for research and technology; and because there was clearly an interest on the part of teachers to learn more about new media and other contemporary curricular approaches. As DBR is collaborative and pragmatic, there has to be at least a tacit need on the part of the research co-participants for an educational innovation in their art classrooms.

NEW AND SOCIAL MEDIA AT OAK SECONDARY

At Oak Secondary, students referred to using Facebook on many occasions. They talked with each other about having a parent looking over their shoulder at what they were doing online at home. They discussed the posting and production of digital photographs and videos. Some students carried their laptops in duffel bags and shared sites together, while some got on school computers to log onto Facebook. Others were observed texting with their mobile phones. There were even times when students would re-enact scenes from YouTube videos for each other. Throughout the course of a school day,

students were referencing and interacting with new and social media. Consistent with research by Ito et al. (2008), much of the activity was centered on friendship-driven practices. Some students, especially those taking the AP exams, used Flickr and Facebook to share recent artworks with their teachers and fellow AP students. For them, social networks also acted as portfolio system for traveling between school and home, unencumbered with the physical weight of their artworks.

SCHOOL POLICY ON THE USE OF SOCIAL MEDIA

I observed that student and teacher use of social media was common throughout the school. What was not obvious was the school's policy on the use of social media. The participating teachers were comfortable with social networking and saw the advantages of using it in their art classrooms. They also described a discomfort on the part of other teachers with their use of social networks like Facebook. The Pine School District is one of few in the Vancouver area to not block sites like Facebook and YouTube. However, at the time of the study, the principal of Oak Secondary had instituted a rule prohibiting students from using Facebook on any of the school computers. This left regulation, surveillance, and discipline to the teachers. There was no stated policy on social media sites like YouTube.

The teacher participants in this study all had an aptitude and sympathy for new and social media in the art classroom. Participant teachers stormy and Mary Lou used Facebook to start closed (in other words, by invitation only) groups where they posted assignments and announcements and where students could post their artworks. They also looked to YouTube for readily available resources for teaching materials and processes. Access to free instructional videos was an attraction for both Mary Lou and stormy.

SOCIAL NETWORK SITE- NMSNAE

New Media & Social Networking in Art Education (NMSNAE) was the name of our online community (Figure 4.1). It was a password-protected, invitation-only, social networking site using the open-source Elgg platform. Social networks are a vital application in the broader social media ecology. boyd and Ellison (2007) defined social networking sites as as Web sites that allow users to

> (1) construct a public or semi-public profile within a bounded system, (2) articulate a list of other users with whom they share a connection, and (3)

> view and traverse their list of connections and those made by others within the system. (¶ 4)

Social networks offer participants a place to post digital photographs and videos, post blogs, send messages, chat, and initiate discussions. What distinguishes most social networks from more traditional Web sites is that the content—texts and images—is created or contributed by users themselves.

NMSNAE was custom designed to resemble many of the social network interfaces that participants were familiar with, such as Facebook. This was to ensure that the online social network interface would feel familiar and be easy to use. The purpose of this research was not to design and research a *specific* social network design; rather, it was to research the use of something familiar in a different context for different purposes. Participants were able to post images and videos, create a user profile, start and maintain a blog, and post to forums, all through a main page that summarized activity on the site. The site was password-protected and to protect the confidentiality of research participants, the only users allowed into the social network were those who had been approved by me.

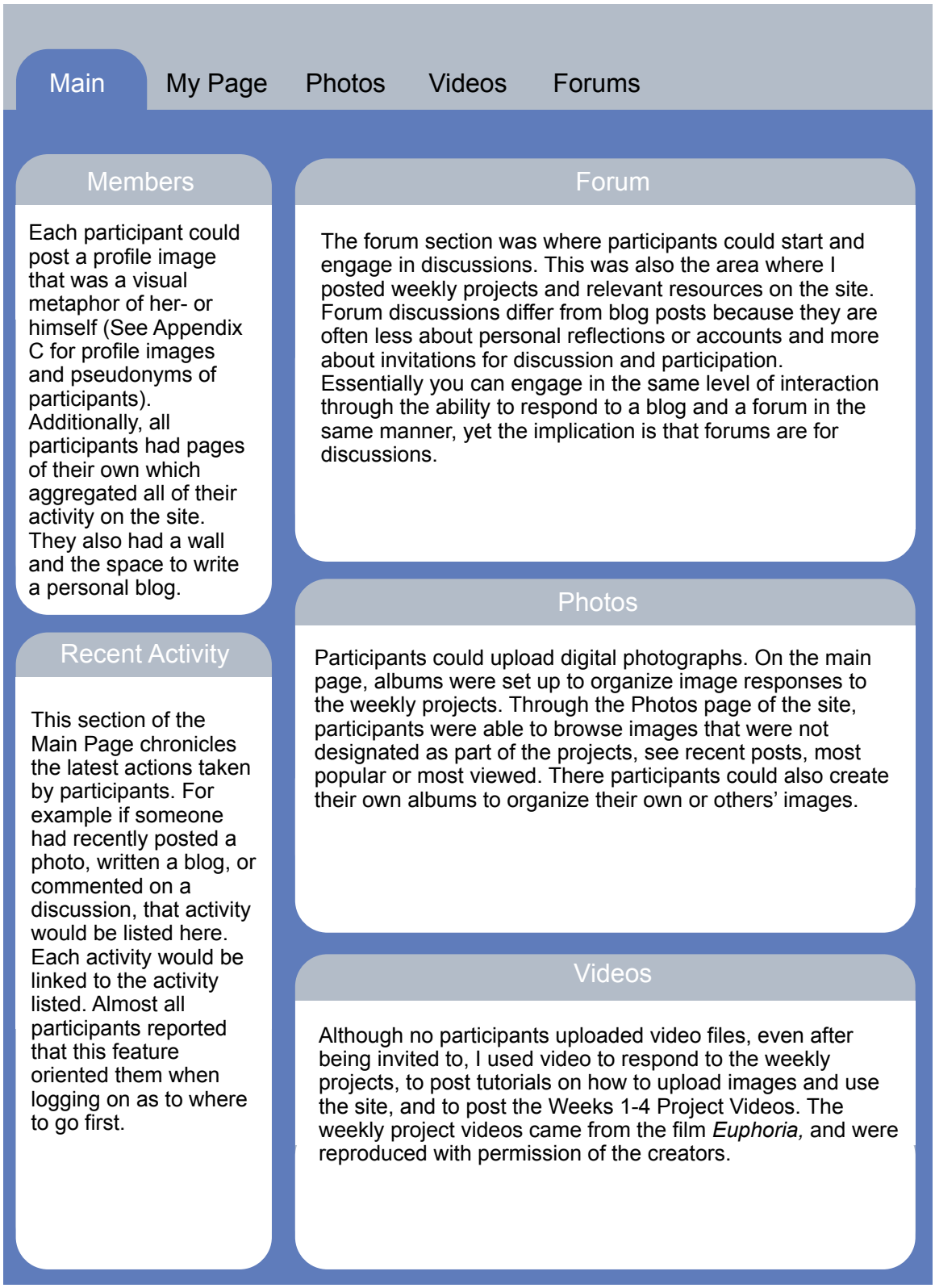


Figure 4.1. New Media and Social Networking in Art Education (NMSNAE).

PARTICIPANT RECRUITMENT

There were only two criteria that student participants had to meet in order to participate in this research study. The first was permission from their parents; second was the ability to access the Internet and a digital camera. Arrangements were made to provide for any students who did not have Internet access or a digital camera. This was offered in the consent/assent forms and in-person recruitment presentations of the project. All participants were able to access the Internet from home, and all had access to digital cameras. Three participants, Gaelan Knoll, Opti, and Jean Valjean, requested digital cameras, which were provided because the cameras they had access to belonged to either siblings or parents. All of the participants except William S. Maugham posted a visual metaphor that represented themselves in their profile images. Participants' profile images were associated with all of their individual actions or postings throughout the social network. Some participants chose profile images that they used throughout the study, while others changed their profile images during the project. In addition to using visual images to represent themselves, as their profile, participants were asked to choose pseudonyms that could not be easily linked to their physical identities. In Appendix C the participants pseudonyms and profile images are listed. I created the pseudonym Mr. John Charles.

All of the participants, including the teachers, had prior experience with social networks and all had used a digital camera and posted images online prior to this study. After the first round of interviews, I found that this group of teens and adults were using the Internet daily. Use of a computer or any other new or social media technology was an integral part of their daily lives. The student and teacher participants not only socialized online; they were also actively seeking information, support, and community around school-related subjects and their own interests.

Overall, the student participants' self-identified ethnic and cultural origins corresponded to the ethnic distribution of the city of Alder. This contrasted with the that of the teacher participants, who all identified themselves with Anglo-European backgrounds. Of the teacher participants, 3 self-identified their offline gender as female (Mary Lou, Lucy MaGee, and stormy); 1 self-identified as male (Rick O'Shay). Of the student participants, 13 self-identified their offline gender as female (Haine Walker, Mango Jello, Sophie Lee, Gaelan Knoll, Sunshine Ice, Pucchomochi, Ingrid DiCaprio, Kezia, Milo Fishie, and CUTE Bunny) and 7 self-identified their offline gender as male (William S. Maugham, Opti, Ricky Bobby, Jean Valjean, and John Freeman).

Though it was not asked in interviews, it was inferred from observation and the fact no participant expressed that they did not have access to the Internet nor a digital camera in their home that they came from at least a middle-income household. However, I make this statement with caution I am aware that Internet access at home is not an indicator of economic status. It was explicitly and repeatedly stated at recruitment and in the Teacher Consent, Parent Consent and Student Assent forms that Internet access (at school) and a digital camera (provided by me for loan) would be made available for those without access to either.

TEACHER PARTICIPANTS

There were 4 teacher participants involved in this study. Initially, I had intended this study to include two participating art teachers: stormy and Mary Lou. However, after the study was advertised and promoted, Rick O'Shay and Lucy MaGee expressed an enthusiastic interest in participating. The initial plan to include only 2 participating teachers was pragmatic, as stormy and Mary Lou had previously agreed to host this study at their school. After observing my interactions with her students, mentoring for the AP exam, and hearing about my own research interests, Mary Lou was the first teacher to express interest in hosting this study. For her, my research interests in new and social media, and contemporary new media art curricula represented an exciting possibility for her pedagogy and art department.

Mary Lou was serving as the art department chair at Oak Secondary. Additionally, she was completing a Master's degree in art education at the University of British Columbia (UBC) at the time of the study. This was where she first became aware of my Advanced Placement experience, and subsequently asked if I would mentor her students through the process. Mary Lou is an experienced art teacher who is also a practicing artist. Her fine art career is active and she exhibits her paintings throughout Canada.

stormy, like Mary Lou, has many years of art teaching experience. She is also a practicing artist, exhibiting her paintings throughout the province and Canada. Lucy MaGee had a part-time appointment at Oak Secondary. It was her first year teaching at Oak. Previously she had been a Teacher On Call (TOC). TOCs are certified teachers who serve as substitutes in a school district. This was Lucy MaGee's first long-term art teaching appointment, and her third year teaching. She, too, is a practicing artist, working primarily as a painter. Rick O'Shay was a pre-service art teacher and former student of mine at UBC. Rick is also a practicing fine-art photographer.

I had not initially planned to have Rick O'Shay as a part of the study; in fact, I was hesitant to consent to his joining the project because I did not want to take away from his practicum experience. However, after his enthusiastic request to join, and on consultation with his sponsor-teachers, stormy and Mary Lou, I invited him to participate. One of the concerns stated by the UBC Institutional Review Board, which approves the ethics of all research done through the university, was that this study should not alienate nor exclude anyone who wanted to participate. Because this study was about teachers and students working collaboratively throughout a school, the IRB made it explicit that no one should be arbitrarily excluded from this study. The addition of Lucy and Rick was also an opportunity to expand the range of participants, as this curriculum and social media space were being conceptualized as a third-space pedagogy where artists, teachers, and students would be inquiring together (Wilson, 2003, 2008a).

STUDENT PARTICIPANTS

There were 15 student participants. They came from Grades 9 through 12. In consultation with the teacher participants, it was decided that this should be a extra-curricular project advertised through the art department to the entire school. The study was open to any student who was interested. The teachers and myself advertised the study in all of their art classes and in the after-school art club (named the Doodle Club). A 10-minute slide show outlining the project and a informational sheet were distributed. Additionally, Parent Consent and Student Assent forms were made available to any interested students.

No Grade 8 students showed interest. Jean Valjean was the only Grade 9 student to participate. He came to the project through the Doodle Club, as he was not taking any art classes at the time. Haine Walker was the only Grade 10 student participating in the study. Although she self-identified an offline identity of female, she presented her online identity as male. I will refer to Haine Walker as he(she) throughout the remainder of this dissertation. This is done to represent this participant's fluid identities across both online and offline contexts. Haine Walker was active in his(her) Grade 10 art class, and self-identified as a student who puts an effort into everything he(she) does in art. He(she) also describes him(her)self as open to all types of media and styles in art. Haine Walker was also observed spending time after school working on art assignments and participating in the Doodle Club. Both Haine Walker and Jean Valjean were active participants throughout the study.

Grade 11 students made up the majority of student participants in this study. Mango Jello came to the study with a number of years of photography experience at Oak Secondary. At the time, she was not taking a course in the art department because photography was only being offered in the fall of that academic school year. Mango Jello had heard about the study from Mary Lou, her photography teacher. Sophie Lee, a close friend of Mango Jello, was in the same situation. She had had many years of photography experience and was not taking a course in the art department at the time. Mango Jello and Sophie Lee were active participants throughout the study.

Gaelan Knoll was a very active art student at the time of this study. She was enrolled in two art courses, one with Mary Lou and one with stormy, and had helped to organize the Doodle Club. The Doodle Club was an after-school group that was offered for those students who wanted more time to work on their own art or to work collaboratively on art projects. It was an opportunity for students who were not currently enrolled in any art courses to engage in art making, in a community, with the mentorship of stormy. Like Haine Walker, Gaelan Knoll self-identified as female offline, while online identified as a male. I will refer, as I do with Haine Walker, to Gaelan Knoll as he(she). Opti, a close friend of Gaelan Knoll, was not enrolled in any art class at the time of this study. He was, however, active in the Doodle Club. Then in Grade 11, Opti had not taken an art course since Grade 9. Both Gaelan Knoll and Opti were active participants on the site throughout the study.

Pucchomochi, Milo Fishie, Kezia, CUTE Bunny, and Ricky Bobby comprised the rest of the Grade 11 students participating in this study. Pucchomochi and Milo Fishie were not enrolled in any art courses at the time of this study. They were active members of the Doodle Club and described this as an opportunity to continue making art with their teachers. All of the participants who were not taking art courses at the time expressed that this was an opportunity to keep making art. The most commonly stated reason for not taking an art course was because there was no room in their schedules for art. Both Pucchomochi and Milo Fishie participated frequently at the beginning of the study, and gradually reduced their posting of comments and images.

Kezia was also not taking an art course or participating in the Doodle Club. She was recruited by stormy, her former art teacher, with whom she kept in regular contact. Her participation was sporadic, posting and engaging in dialogue in short bursts.

CUTE Bunny was recruited by Lucy MaGee from one of her art classes. CUTE Bunny self-identified as being from Korea, and stated that her primary language was Korean. At the final interview she described her initial motivations for participating as a way to become better at observational drawing. Both Lucy MaGee and I were aware of this at the time of recruitment and communicated that she was welcome to post her drawings for feedback, but that there would not be specific instruction on the NMSNAE about improving observational drawing. CUTE Bunny participated for the first two weeks and then stopped participating, because as she indicated in interviews, she had misunderstood what the project was about due her limitations in English.

Ricky Bobby was in one of Mary Lou's art classes at the time of this study. His self-described interest in the project was an opportunity to increase the breadth of his art portfolio. Ricky Bobby was clear that his academic goals were to attend a post-secondary fine arts college in the United States. Seeing this as an opportunity to work with a former secondary- and university-level art teacher, Ricky was most interested in my feedback for improving his portfolio. He posted responses to only one of the weekly projects, and the majority of works posted by Ricky were from his drawing portfolio. When he asked for specific feedback, I offered him my professional advice and mentorship. This was the extent of his participation in the study.

William S. Maugham, Ingrid DiCaprio, Sunshine Ice, and John Freeman were the Grade 12 students involved in the project. Both William and Ingrid were enrolled in the AP portfolio exam. They expressed that this project offered an opportunity to add more breadth to their art portfolios and to receive feedback on their artworks. They worked closely together throughout their Grade 12 year, supporting each other in their artistic inquiry and preparation for post-secondary education. Both were heavily involved with Grade 12 graduation-related activities, and started a side fundraiser for the art department which involved taking portraits of graduating seniors for friends and family. Their participation was limited in this project due to their busy schedules. However, they did post a significant number of artworks from their portfolios when they thought it would fit the weekly projects. Many of the Grade 11 participants mentioned repeatedly how much they enjoyed seeing the work of AP students on the site.

Sunshine Ice was one of Mary Lou's students. She was one of the first participants to sign up for the study. However, her participation in the project was significantly limited due to a family illness that occurred two weeks into the project.

John Freeman, an art student in courses offered by stormy and Mary Lou, was also one of the first participants to sign up for the study. During initial interviews, he expressed excitement to participate. I inferred from interviews that John Freeman was one of the most technologically experienced, in terms of new and social media, of all the participants. He attempted to recruit his friends to participate in this project; however, they were not interested. After one blog post expressing his excitement for the project, John Freeman stopped participating altogether.

For a completely volunteer online community, the participation rates in this study were high. With only one participant not posting any responses to any of the curriculum and every participant posting an image at least once in response to the curriculum, the curriculum participation rate stood at 95%. In volunteer, interest-based social network communities, the average participation rate—meaning, those who post content—in 2008 was around 25% (Li & Bernoff, 2008). This study did not employ a statistical analysis of participation rates; rather, the purpose of pointing this out is to describe the context of this qualitative, exploratory DBR study, as a completely volunteer project that was not a required school curriculum.

The teachers expressed that they would like for it to be an extra-curricular project. They saw this as an opportunity to boost interest in the art department for those students who had not already enrolled in any art course. It was seen by the teacher participants as a kind of new-media version of the Doodle Club. A DBR methodology does introduce innovations into education environments; however, it has to consider the needs of participants in the study.

ETHICAL CONSIDERATIONS

The following reflects on two ethical tensions and their constraints on this research study. The first describes how participation in this project was shaped by participant-held perceptions of what research is, the prestige of research institutions, and the power that researchers hold in the eyes of the participants. The second tension described is related to how this online research project raised significant tensions with the university Institutional Review Board (IRB) around the conditions of confidentiality. The IRB constrained what kinds of data could be generated.

Both Gaelan Knoll and Haine Walker acknowledged my position in this study as a reason to participate. They were not alone in stating their feelings that this be a fun

project, wherein they would have an opportunity to engage in activities outside of their normal art experiences. I repeatedly tried to ease participants' anxieties that they were not going to be marked (graded) for their artwork, and I clearly articulated through the assent and parent consent, in-person meetings, emails, and instant messages that their contributions to this extra-curricular project would not be graded. Student participants would apologize about not posting work for an assumed deadline, of which there was only one—in Week 6. It was continually stated to individuals and to the whole group that there were no deadlines; instead, it was an invitation to participate when they could.

I was often surprised at their expressions that they were there to help me, a PhD student pursuing his doctorate. Some, like Haine Walker, were also curious about what graduate students at UBC do for research to earn graduate degrees. Apparently, this study offered students a positive of view of what research was about. Many of the participants indicated that they were expected by their parents to attend university. Student participants who were curious as to what Ph.D. students do for research were also found to be investigating *me* as research for their career interests. Clearly, the power that I held manifested itself in expected ways, however, I did not expect to be subject of their own inquiries.

In art educational research, specifically those studies dealing with human subjects, Institutional Review Boards (IRB) present challenges to research design and enactment (Sanders & Ballengee-Morris, 2008). Placing the ethical criteria of biomedical research onto studies that pose minimal risk brings about these challenges (Gunsalus, et. al., 2007). For my university's IRB, maintaining confidentiality in online environments posed a particular dilemma. In the case of this study, one of the major concerns of the IRB was the slight risk, on a password-protected social network site, that participants would download the images of other participants, especially those images that could identify a participant, non-participant, or site of research, and that these could then be distributed widely in the open waters of the Internet. Even the Flash-encoding software enabled on our site could not prevent easy download of videos. No technology that exists today could prevent screen capture or recordings by software located on participants' own computers.

Confidentiality is problematic when there are no set understandings as to what it entails. Christians (2003) states that in research "the signature status of privacy protection, watertight confidentiality has proved to be impossible. Pseudonyms and disguised

locations are often recognizable by insiders" (p. 218). Little did I realize that participants who wanted to remain anonymous to everyone involved were already quite adept at doing so, and those who did not disclosed, under their own agency, who they were to other participants who were on the social networking site.

The possibility of images linking participants' online identities to their physical identities was a concern not only of the IRB, but also of one of the parents of the participants. Gaelan Knoll's parents were initially skeptical of her participation in the project, although she was enthusiastic. After they initially refused her participation, stormy offered, without my prompting or request, to talk with her parents about the project and to detail how she, the teacher, would be participating with Gaelan Knoll. After Gaelan Knoll communicated stormy's offer, her parents agreed to her participation. When asked about why her parents were concerned, Gaelan Knoll shared that they feared her identity would be revealed online. This anxiety around teens and the Internet is not isolated to this research study. There is a popular misconception that teens are in danger from online, adult predators, who are always strangers. Teens are in less danger from unsolicited interactions with adults online than they are from online bullying from other teens, often ones they know personally (Palfrey, Sacco, boyd, DeBonis, & Tatlock, 2008).

In response to the IRB comments and parental concerns, I enacted the following to protect the identities of study participants. Without any existing technology that would prevent screen capture, I took curricular precautions that prevented participants from posting images that would identify themselves, others, or their school. In what was supposed to be an emergent and responsive curricula, I was faced with having a Institutional Review Board limiting the type of content that could be produced.

VISUAL METAPHORS, IDENTITY, AND CONFIDENTIALITY

I produced and posted on our site a video tutorial titled *How to Make a Visual Metaphor*. It begins with me discussing how artists use the world around them to represent complex ideas about their thoughts and feelings, without showing themselves directly. In the video, I demonstrate that feelings, such as tension and stress, could be represented through the squeezing and pulling of a red ball. By providing an alternative possibility to consider in the representation of ideas and emotions, I was hoping that this could be a constraint that enables divergent representations of knowledge. In many ways this did provide the opportunity for participants to explore alternative ways of representation. However, it also alienated participants like Ingrid who, as an AP student, was developing

a distinct portrait style; it was something that restricted her ability to participate in the weekly projects. It also affected the types of work produced in terms of the media deployed. Although video was suggested as a possible medium for students to use, no one posted a video on the site. Haine Walker, whose anonymity was important to him (her), mentioned that he(she) felt the sound in video risked revealing his(her) identity.

DATA COLLECTION

A number of data collection techniques were utilized to create as robust a description of the actors, actions, and relations as possible (Latour, 2005). For this study I collected data from participant interviews, both offline and online; from my own observations of online and offline activity kept in a daily journal; and from images and texts posted by participants. The social network interface also enabled the collection of numerical data, such as the date and time an image was posted, amounts of images posted, and the number of times an image was viewed. These kinds of data (image views, theme occurrence, and so forth) were not subjected to a statistical analysis; rather, they were *played* with in visually metaphorical ways. It was another way to give form to data in meaningful ways (Eisner, 1997). Data was stored digitally, organized into a database, coded, and archived.

INTERVIEW DATA

Interviews were conducted in a semi-structured format (see Appendix A for sample questions), where questions were prepared ahead of time as a general guide to structure a conversation around participants' experiences and interpretations. Semi-structured interviews were used because as Neill Ustick (n.d.) stated, "semi- or un-structured provides a powerful means of elucidating the detailed and textured, complex and sometimes contradictory, meanings people develop in their lives, many not revealed or even asked for in survey type research" (p. 16). Participants were invited to elaborate on responses given to the questions, and they were allowed to skip questions altogether. Every effort was made to create a safe and comfortable interview environment. Participants were individually interviewed, in person, once in the beginning of the study and once at the end. A mid-point interview was set up when this was convenient for participants. For these mid-point interviews, participants were given the option of participating in-person, by email, or through instant-message chat. Each in-person interview lasted, on average, around twenty minutes. Interviews were usually held in an open-door, empty classroom in the art department of Oak Secondary. At the final interview with participants, a laptop with the social network site and their images were

available for participants to reference in any of their responses. This also provided the opportunity to ask specific, elaborating questions about any of the responses given in an interview as it related to the purposes of this research. All interviews were transcribed and coded.

INSTANT MESSAGE (IM) CHAT AND EMAIL

In addition to the in-person interviews, I also conducted interviews through email or instant message (IM) chat. This was used only for the mid-point interviews. There were a few reasons for doing this. Many of the participants kept busy schedules, and arranging a mutual time to meet sometimes proved inhibitive. For example, participants were invited to either arrange for an interview at the school, arrange for an online chat using whatever service they wanted, or reply to an email list of questions. Jean Valjean choose his mid-point interview to be in person, at the school, but we were unable to find a mutually agreeable time to meet until close to the end of the study. Also, by having the option to choose the level of engagement for an interview, the research participant had the ability to have agency in how and when they were interviewed (Hollway & Jefferson, 2000).

Through an interface like IM chat, an interview can be conducted in a semi-structured format, in which elaborating questions can be directed to participants' responses. Only three of the participants chose this option (Milo Fishie, Sunshine Ice, and Sophie Lee). Email interviews were more structured, in that participants answered each set of questions completely and then received elaborating questions about their responses. Conscious of the time needed to complete the email interview, I only asked one set of elaborating questions. Only five of the participants requested to be interviewed through email (Pucchomochi, Opti, Mango Jello, Kezia, and Gaelan Knoll).

IMAGE AND VIDEO DATA

Image and video data in the form of digital photographs or digital video were archived in a database with information such as date posted, title of image (given by the participant who posted the image), description of image (given by the participant who posted the image), total image views (how many times the images was viewed throughout the study), textual responses (text-based responses as posted as comments to the image) and weekly project responses (what the image was in response to). Most participants posted digital images directly to the site, meaning that images came directly from digital cameras rather than from scans, appropriated digital images from the Internet, or digital

images of artworks in media such as drawings or paintings. Although the option was available, no participants other than me posted videos to the site.

TEXTUAL DATA

Image data was often accompanied by textual responses or comments, posted with the image by the creator and the other participants. Textual data could also be in the form of blogs or forum posts. Blogs and forum posts differ in that blogs (short for Weblog) are closely associated with the poster (they tend to be posts to be read with an option to comment), while forums (like open discussions) are associated with the creator but are explicitly openings for a discussion. Textual data is especially important around the discussion of images. Much of the analysis and iterations of the curricula draw from participant discussions around the ideas represented in the posted images.

OBSERVATION NOTES AND REFLECTIONS

In this study I was a participant-observer, meaning that I participated in all of the activities, weekly inquiries, and discussions online. Since this enactment of DBR was an inquiry into not only a contemporary curricula but also a pedagogy, I was acting as co-participant research, educator (Kelly, 2003), and artist. Throughout the course of this study, I kept a digital journal that included my observations of activity both online and in school. On average, I visited the school site one to two times a week when not interviewing participants. It was an opportunity for participants to get to know me as a researcher and art educator. The observations became an important part of my ongoing analysis and recording of my own interpretive frame and the moments when certain themes or patterns were noticed. Every day I wrote an entry that noted my emotions, activity on the site, comments on the images, activity at the school if I was there, reflections on interviews, and informal conversations with participants. It was also a place to plan my own pedagogy and adaptations of the curricula to the images and textual dialogues on the site.

THINKING COMPLEXLY ABOUT DATA ANALYSIS

> Qualitative interpretations are constructed... The interpretive practice of making sense of one’s findings is both artistic and political. (Denzin & Lincoln, 2003, p. 37)

The etymological roots of the word *analysis* come from the Greek *analuein*, meaning to "unloose". This describes the first approach to analysis in this research: to unloose tightly bound associations. This is not just to describe their component parts, but also to describe the relationships and ties that move from the descriptions participants constructed, including my own subjectivities, through the ideas, images, and texts that were produced throughout this study. This methodology, with an epistemology drawn from complexity thinking, broadly looks for patterns in the data to understand questions around knowing, learning, and teaching through an art curricula and pedagogy in a social network environment. As such, the data analysis was structured broadly around the goals of this exploratory DBR study: to better understand how knowing, learning, and teaching art are affected by new and social media; to theorize and enact an inquiry-based art curricula and pedagogy, as drawn from the practices of contemporary new media art and complexity thinking; and to articulate new understandings of learning art at the individual and collective scales as it is enacted in curriculum, pedagogy, and a social network space.

Most enactments of DBR methodologies choose strategies of analysis that reflect an objectivist epistemology to produce findings that are generalizable and verifiable, and and that do not reflect the researcher's bias (Wang & Hannafin, 2005). However, there are some strands of analysis and interpretation in DBR that emphasize thick narrative descriptions to deal with the complexities of learning (Kelly & Lesh, 2000). Narrative has a tradition in understanding educational experiences (Connelly & Clandinin,1990). The particular approach to narrative in this analysis draws from the methodologies of phenomenology (Merleau-Ponty,1962; van Manen, 1990) and hermeneutics (Gadamer, 2004). In phenomenology, it is about the lived experience of individuals, while bracketing my own interpretive frame to understand what it was to experience knowing, learning, and teaching in this study. This is coupled with hermeneutics, which is complementary to phenomenology yet distinct (Byrne, 1998). While phenomenology focuses on lived experiences, hermeneutics focuses on the interpretation of language. This is particularly helpful when addressing how the participants used language to describe their experiences of knowing, learning, and teaching through this study. Hermeneutics and phenomenology are complementary to studies that enact an inter-objectivist epistemology, since it is about both the lived experiences of phenomena and the descriptions of descriptions of that phenomena. Such and analytical approach is well suited to creating interpretations of complex learning at the both the individual and the collective scales.

In most objectivist-oriented research, the words *analysis* or *analytical* are construed as taking things apart to get at their root causes (Davis & Sumara, 2006). It is a desire to come closer to articulating an efficient causality. In the sciences, efficient cause was reduced down from Aristotle's four causes: material (out of which something is, for example, a marble statue), formal cause (the shape of the statue or the idea of it existing in the first place), final cause (the end purpose for what should be done, or *telos*), and efficient cause (the force that brings something into being, for example: the artist sculpting the statue) (Falcon, 2008). Efficient causality has come to shape much of how we understand human behavior and action (Juarrero, 1999).

Juarrero (1999) argued that in accounting for human behavior and learning, the sensitivity of humans—as complex dynamic systems—to context and initial conditions would mean that every cause/stimulus would need to be "specified with literally infinite precision" (p. 62). It would end up generating a "universal law" that refers to only one case. Juarrero argued that it is time to give up deductive inferential explanation. Human behaviors are phenomena that are dependent on time and context, which traditional theories of causality have reduced out of the picture. Using hermeneutical narratives, a process of moving from part to whole and whole to part, provides better understandings of complex dynamic human behavior. She stated that "interpreters must move back and forth: the whole text guides the understanding of individual passages; yet the whole can be understood only by understanding the individual passages" (Juarrero , 1999, p. 223). Time and context are critical factors in the emergence and dynamics of learning, and hermeneutics and phenomenology honors these two features in ways that objectivist analysis cannot. This is the role that narrative plays in this analysis: thick descriptions, generated through text, images, and interviews, resist convergences towards generalizations (Denzin & Lincoln, 2003).

What is sought in this DBR analysis is an understanding of the local conditions that were affected through the experience of knowing, learning, and teaching, through a design and a complex contemporary new media art curricula in a social media space. In addition to understanding the local conditions, successful DBR, informed by the kind of epistemological understanding that underlies this dissertation, then seeks implications for learning through broad articulations.

DATA ORGANIZATION, PRESENTATION, AND CODING

This next section describes the organization of data in this dissertation, its presentation and its coding. The following Chapters 5 through 8 all address features of this study's analysis and interpretation. In Chapter 5, I re-present a description, analysis, and interpretation of the enacted contemporary new media art curricula and pedagogy. Instead of looking for linear instances of causality, I explore an unfolding curriculum and pedagogy to better understand how knowing, learning, and teaching were experienced and interpreted. From these interpretations, insights into knowing, learning, and teaching art through this kind curriculum and pedagogy can be articulated.

In Chapter 6 the data analysis and interpretation moves to investigate what it was like to learn art through new and social media. Here the analysis looked for recurrent patterns (Lichtman, 2006) into what participants described as their experiences of learning and inquiring through art in this social network site.

The insights from Chapter 7 around issues of identity and participation online arose as the study unfolded and in subsequent iterations of data analysis. The data analysis here was similar to that of Chapters 5 and 6; however, the pattern that emerged was not an inquiry direction that was intended at the beginning of this study. This was a theme that emerged throughout my data analysis.

In Chapter 8, a different approach to data analysis is taken. Here data visualization is used to provide an alternate form of representation of the numerical data that was collected (Eisner, 1997). This is not a formal statistical analysis. The purpose of doing this is to address and represent the knowing and learning system. It is about presenting new images and metaphors of knowing and learning in art at the collective level (Davis & Sumara, 2005).

CODING AND ANALYZING THE DATA

The data collected went through a number of coding iterations as part of my analysis. In addition to undertaking the reflective analysis through each weekly iteration, I also went through multiples iterations of data coding and analysis after the curriculum and data collection were finished. After transcribing the interviews and logging the images into a searchable database, I went back to my journal entries of my ongoing analysis and reflected on the goals and methodology of this research and on my epistemological

position. This formed the kinds of core codes used: knowing-/knowledge-related, learning, teaching, identity and participation.

The first round of coding looked for any instances in my journal entries and transcribed interviews that dealt with knowing/knowledge, learning, or teaching. In this first pass, and in my ongoing analysis, issues around anonymity and identity became apparent. The second pass of the data was this time enlarged to encompass not only interviews and journal entries, but also the participants' textual dialogues on the site and participants' images. From the second pass, themes and questions emerged around (a) who and what is considered a "knower" and "learner" in a social network space; (b) how a dynamic system of collective ideas, resulting from artistic inquiry, shapes and is shaped by the learning of individuals in a bounded collective; (c) what is taught and who is teaching in such a collective; and (d) what roles are played by identity performance and construction in online participation and learning. The third pass through the data helped form the organization of the next four chapters: Chapter 5, the designed art curriculum and pedagogy; Chapter 6, learning through new and social media; Chapter 7, identity and participation online; Chapter 8, the knowing and knowledge system.

A fourth round of coding was done around the images again, and pertains to the data visualizations in Chapter 8. What is attempted is to visualize and describe a dynamic network of knowledge that has given rise through the interrelationships of inquiry in the online site. The purpose is to create new metaphors for learning at the collective level in art. It is an attempt to visualize how a collective system of ideas representing in and through artworks in a classroom is shaped by learners and shapes learning. These insights are informed by my theoretical framework of this study and by the understandings of learning described in Chapter 6. To do this, seven idea categories were identified, based on participant descriptions of what they thought their images were about. They are consumer culture, happiness, macro or looking closely, sustainability or environmental issues, place, people or relationships, miscellaneous. Images were coded with those either singularly, meaning that I identified only one theme represented in the images or with multiple idea categories, meaning that I identified more than one theme represented. A further description of this process can be found in Chapter 8. The iterative process of coding is movement from part to whole and whole to part, a recursively elaborative process to generate understandings at the local and specific level, and more broadly at the level of contributing to theories of learning for art education.

SUMMARY

DBR is a methodology that can address the complexities of inquiring into the intersection and implications of new and social media, contemporary new media art practice, and complexity thinking in art education. DBR as enacted in this research is described as having these features: interventionist, theory-driven, pragmatic, contextual, iterative, collaborative, and integrative. I explored histories of DBR and the epistemological tensions that emerge when coupled with complexity thinking. I presented a detailed description of the sites where this research was enacted and of the ethical considerations that affected this research. Data collection, the methods of analysis, coding of data, and organization of interpretations and understandings were also presented. Having presented the theorization of a contemporary new media art curriculum and pedagogy, an exploration of complexity thinking and its metaphors for learning, and a methodology to inquire into the intersection of all the strands of this research, I move now to re-present the data, analysis, and interpretations.

CHAPTER 5: NMSNAE CURRICULUM AND PEDAGOGY

In this chapter, I re-present a description, analysis, and interpretation of the educational design used in this study. The purpose of this chapter is to examine the enacted inquiry-based art curricula and pedagogy, which drew from contemporary new media art and complexity thinking. Through descriptions which include participant artworks, dialogues, interviews, and my analysis through each iteration of this design, I will describe, analyze, and interpret the inquiry-based art curriculum, pedagogies, and participant activity. Of specific interest to this DBR study are the interpretations of how the art curriculum theorized in Chapters 2 and 3 was enacted, and what insights into learning and teaching can be articulated through a design like this.

The organization of this chapter reflects how the art curricula and pedagogies unfolded week by week. Although a linear representation was used, I am not looking necessarily for linear instances of causality. Rather, I explore the unfolding curriculum and pedagogies to better understand how this design was experienced and interpreted (Gadamer, 2004; Juarrero, 1999; Merleau-Ponty,1962; van Manen, 1990). The iterative process of DBR was enacted in the weekly projects. In DBR, iteration is a part of the analysis, interpretation, and enaction of conjectures generated throughout a study (Sandoval, 2004). Cobb, Confrey, diSessa, Lehrer, and Schauble (2003) stated that the iterative qualities of DBR provide “greater understanding of a *learning ecology*” (p. 9). A learning ecology is a complex system. Iteration provides an opportunity to account for the myriad of conditions that play a role in learning. Presenting the study’s design in this fashion provides an opportunity to analyze and interpret the pedagogy and curriculum.

DBR studies cannot use the same kinds of standards, such as internal validity, external validity, reliability, and objectivity, as do other research models. DBR studies are evaluated on the “dialectical interaction between the conjecture and the intervention” (Confrey & Lachance, 2000, p. 258), meaning, they evaluate the quality of relationship between the epistemology of the design and the unfolding intervention. To describe this relationship, Confrey and Lachance suggested that there needs to be a rich account of the design narrative and of how the conjecture and intervention are woven together. The account needs to present ample data, from interviews to student work resulting from the design. Claims for the quality of design and conjecture are based on interpreted data (Confrey & Lachance). In descriptions of research there are always instances of editing, selecting, and analysis that carve away at whole areas of data. Representing the hours of transcribed interviews, pages of notes, hundreds of images,

pages of text posted to the site, would require a new media response to research, data representation, and dissemination (Voithofer, 2005). However, complying with dissertation formatting requirements, I will represent an interpretation of the data that weaves dialogically between the theories explored and the intervention as it unfolded. I have selected a number of participants to represent this account. They were chosen to represent the diversity of the group by age, gender, and participation rate. They were also chosen because of their ideas and ability to offer insights into to the local learning of this enacted design and to point towards new understandings of learning in art. What follows is a re-presentation of the designed art curricula and enactments of pedagogy, in the context of a social network through my own analysis and interpretation of the collected data.

NMSNAE- PRE PLANNING

In the pre-planning stage, I had initially developed a general shape of the design. However, I deliberately did not design a detailed trajectory for this curriculum. I wanted the design and iterations to be an emergent curriculum. I knew I wanted to design a space that brought students and teachers together to inquire through art in new ways. I wanted a space that would reshape relations between participants and local knowledge in the same kinds of ways the contemporary new media artists did as described in Chapter 2. I also knew that I wanted an emergent curriculum and pedagogy that adapted to the students and that was shaped by their artistic inquiry, as was described in Chapter 3.

As a mentor for the AP students I was familiar with the context, student population, and existing curricular structures at Oak Secondary. When Mary Lou and stormy initially agreed to participate in the study, and after IRB approval, I made a number of school visits. On those visits I wanted to get to know the students of Oak Secondary and their attitudes towards and uses of new and social media through informal observations and conversation. Though these observations and conversations informed the design, they were not formally collected as data. During these visits, I also presented my initial ideas about the curriculum to stormy and Mary Lou for their input. I gave them each a copy of the film *Euphoria* to watch. I wanted to know if they thought the film would be appropriate for the designed curriculum and their students. They were enthusiastic about the design and offered important support and input into making the design meaningful and relevant to their students. I wanted to ensure that, as this was to be a DBR study, its design would be collaboratively constructed and pragmatic to local conditions.

One of the major reasons for using a DBR methodology was the opportunity to design a curriculum, participate in its unfolding, and then iteratively respond. From week to week, each iterative step analyzed and interpreted participant responses, interaction, and inquiry. Each week, as a researcher, educator, and co-participant, I adapted the curriculum and my pedagogy in response to the themes I interpreted in participant dialogues and images, and when possible, from formal and informal interviews. Even the weekly media clips from the film *Euphoria* were edited particularly for each week based on my analysis and interpretation of collective themes.

The general shape of the curriculum had three phases. The first phase would focus primarily on creating a space for reshaping relations between participants' ideas about happiness in our culture and their personal lives, through context-sensitive constraints. Those constraints would be embodied in the weekly questions of inquiry, or prompts, and the short accompanying film clips from *Euphoria*. The second phase, inspired by *Learning To Love You More*, would shift towards the collective knowledge that was being enacted by participants. Drawing from the understandings in complexity thinking, I intended the second phase to be about generating a self-organizing complex system by using the history of ideas, as represented in the images, as a source for new inquiry through art. The third phase would emphasize an extended individual inquiry in relation to the experience of inquiring with and through a collective of artists.

RESPONDING TO MEDIA: EUPHORIA

In the first phase, participants responded through artistic inquiry using digital photography to segments of the film *Euphoria* (Boot, 2008). An art/documentary film, *Euphoria* was designed to stimulate discussion and reflection around trans-disciplinary themes which include neuroscience, social anthropology, psychology, and history. Its purpose was to provide an opportunity for adolescents and adults to reflect and discuss the ways that creative engagement with something they care about can create meaning and pleasure in their lives.

There were a number of reasons for incorporating a film like *Euphoria* as a constraint that enables. One reason stemmed from my concerns that this inquiry-based art curriculum would not be able to be enacted as my own classroom experience (Castro, 2004, 2007). I took into consideration how teens learn through new and social media. Research has shown that adolescents engaged in new media practice produce works in response to other media productions as a way of learning (Jenkins et al., 2007).

Euphoria was used as a thematic catalyst to begin the curricular inquiry. It was also chosen because the film itself embodies ideas such as feedback, meaning-making, and engagement. The filmmakers wanted to make a film that would not provide all the answers, but rather would provide a space for further discussion and elaboration. The open-ended quality of richly conceptualized visual metaphors served as a constraint that, coupled with the weekly prompts, enabled a space to explore ideas about self, happiness, culture, family, and social relationships. Media such as films can be a space of learning when they prompt new interpretive framing that is open and fluid (Ellsworth, 2004). *Euphoria*'s use is conceptualized here as a pedagogical space for new relations with ideas and the world (Bourriaud, 1998; Hansen, 2004).

EUPHORIA IN CANADA

It should be noted that the film *Euphoria* was funded by the United States National Institutes of Drug Abuse, through the National Institutes of Health. There were some scenes that addressed the audience as if they were Americans. Would the participants understand these issues when sections of the film were directly addressed to the American public? This was a concern I had about using *Euphoria* as a thematic catalyst. It was decided, in consultation with the film-makers and teachers, to edit out those sections that directly addressed the audience as if they were Americans. However, the larger themes and ideas represented in the film are not unique to American culture; rather; they extend to most of the industrialized world, including Canada.

PARTICIPANT RESPONSE TO EUPHORIA

Both Sophie Lee and Haine Walker found that the complex visual metaphors used in the film provided a space for not only thinking about these issues, but also visualizing them. For Haine Walker the film provided a space to "think outside of the box." For Sophie Lee it was a catalyst for thinking.

> **Mr. John Charles:** How did you like making art in response to the video clips?
> **Haine Walker:** I think it was pretty fun. The video helped me come up with ideas and to think outside of the box.
> **Mr. John Charles:** How did they do that? How do they make you think outside of the box?
> **Haine Walker:** Well … by what Lee does is out of the box, right? You don't just go out in public and spray paint someone's roof or spray people at dry cleaners. Like if I brought in a hose and started spraying people with it, I would probably get kicked out. [laughs] Or get the police called on me. I don't

paint my shoes gold and slip diamonds on them, but that would still be pretty cool.

Mr. John Charles: What do you think about the *Euphoria* clips you've seen so far?
Sophie Lee: They are pretty interesting. It also gets me to think a lot. Sometimes I don't even realize how much thinking I do just taking pictures. And it comes naturally, you just keep thinking about things and keep generating different ideas and images in your head.

Most of the participants' images and text did not exhibit a strong visual connection to the film. In the weekly projects, with the exception of Week 3, I did not refer directly to the film's visual style or to the representational strategies found in the film. In Week 3, when participants were asked to represent someone in their life who was meaningfully engaged in something that was sustainable, I referred to how the film used visual metaphors to represent people they interviewed without depicting them directly. Not every participant found the film to be engaging, or even engaged with the film itself. Pucchomochi expressed that she did not bother watching the clips and preferred just responding to the weekly prompt, and John Freeman expressed that he could not get anything out of the film.

Mr. John Charles: And what kept you from participating?
John Freeman: Well… I don't know. I didn't feel that passionate about the themes that we were doing. I don't know... I didn't really have anything for *Euphoria*... I couldn't get really a thought process going for it really.

With John, participation and engagement could have been more tied to his own sense of identity; this is explored further in Chapter 7. Lucy MaGee, one of the teachers, had difficulty viewing the clips because of not having the proper Flash player installed on her computer (this issue was resolved by Week 2). Other than Lucy MaGee, no other participant reported a technological issue impeding them from watching the film clips.

The option to use the film throughout the curriculum was presented to the teachers in pre-planning. We all agreed that we would see how the first few weeks went before making a decision. By Week 4, participation had dropped off significantly. We decided that, whether or not it was the film, we had reached a logical conclusion to the first phase of the curriculum.

PRE-ACTIVITY

Before students were able to log onto the site, they had to return a completed Parent Consent and Student Assent form. When they did, they were asked for their email address and given a two-sided handout that outlined the steps for signing on to the site and their responsibilities (Appendix B). They were then sent an email invitation with a Web hyperlink to the site. When they logged onto the site they were asked to respond to a few questions about their practices with new and social media. These questions, such as *How often do you use the Internet in a week?*, were also included in the first in-person interviews (Appendix A). Students were then invited to view the short video tutorials on making a visual metaphor and uploading digital pictures or videos to the site. There was also a short tutorial, posted to the Forum section, on composing pictures with a camera. In all of the interviews with participants, no one commented on these informational tutorials as having impacted their learning, although according to the recorded view counts, they were being watched by at least some of the participants.

The first activity on the site consisted mostly of modifying their user profiles. Seven out of the 20 participants, including me, changed their user profile image from the one they had originally posted. In the video tutorial *How to Make a Self-Portrait Without Showing Yourself* I demonstrated how I chose to make a bouquet of tools to represent who I was on the site. This changed by Week 6 when it was apparent that my identity, based on my responses to the Week 6 prompts, had shifted from resource to co-participant. Most participants commented that they changed their profile images for something more suitable to their personalities as the curriculum progressed.

WEEK 1

The Week 1 project for the curriculum was predesigned, and was complemented by a four-minute film clip from *Euphoria*. The prompt was:

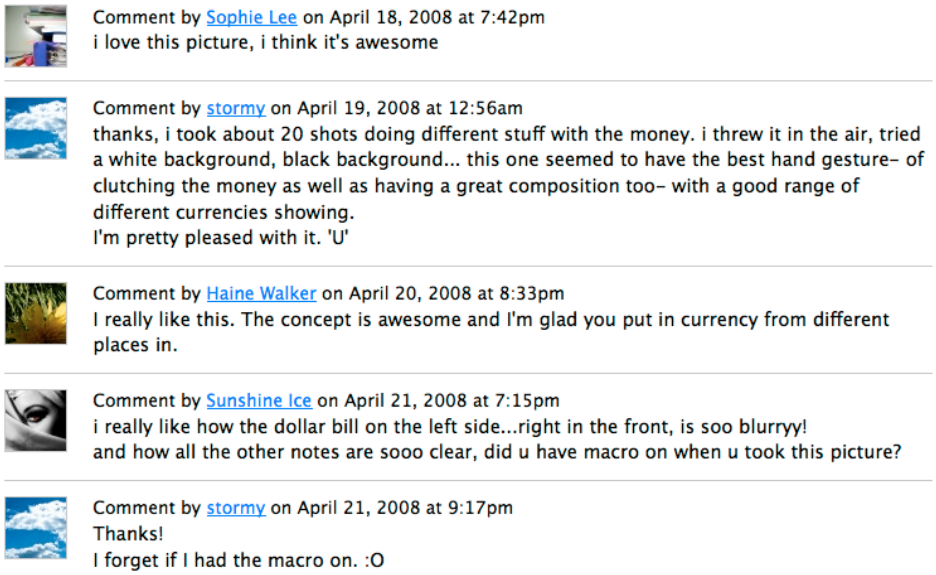
> Watch the Week 1 Project video and respond to the question “How does the world around you define happiness visually?” with a digital photograph(s) or video. Post your photographs or video with a short description or title.

The first few days of activity in relation to the project prompt were slow. stormy posted first, offering an image of a clenching fist full of international money (Figure 5.1). In interviews, stormy commented that she enjoyed having participants comment on her work. Figure 5.1 illustrates an example of this kind of dialogue in response to an image

she posted. Here the dialogue moved from simple appreciation, to concepts, to the stylistic qualities of her image. It was a space that stormy felt she could be both a teacher and an artist simultaneously.

Ingrid uploaded images from her AP portfolio to share. Ricky Bobby posted figure drawings made in an after-school art program. Gaelan Knoll posted images from his(her) neighborhood. Three days into the project, Haine Walker posted seventy-eight images, all taken over a two-day period. Although not directly addressing the weekly project prompt, Haine's significant amount of images was a self-described revelation for him (her) in that it was a moment when he(she) overcame his(her) fears of being judged (Figure 5.2).

Artist: stormy
Title: Week 1 project: A FIST FULL OF DOLLARS
Description: How does the world around me define happiness?
Posted: 4/15/2008 11:21 PM
Views: 57



Comment by Sophie Lee on April 18, 2008 at 7:42pm
i love this picture, i think it's awesome

Comment by stormy on April 19, 2008 at 12:56am
thanks, i took about 20 shots doing different stuff with the money. i threw it in the air, tried a white background, black background... this one seemed to have the best hand gesture- of clutching the money as well as having a great composition too- with a good range of different currencies showing.
I'm pretty pleased with it. 'U'

Comment by Haine Walker on April 20, 2008 at 8:33pm
I really like this. The concept is awesome and I'm glad you put in currency from different places in.

Comment by Sunshine Ice on April 21, 2008 at 7:15pm
i really like how the dollar bill on the left side...right in the front, is soo blurryy!
and how all the other notes are sooo clear, did u have macro on when u took this picture?

Comment by stormy on April 21, 2008 at 9:17pm
Thanks!
I forget if I had the macro on. :O

Figure 5.1. A Fist Full of Dollars.

Figure 5.2. Sample from Haine Walker's early posts.

Although the participants were for the most part posting images and interacting at this stage, I remarked in my journal that I was beginning to feel anxiety that this research study would not be a success in terms of the amount of student engagement with the curriculum.

> **JOURNAL ENTRY: APRIL 17**
> It's slowing down. A few comment posts here and there plus the occasional photo posting. Lucy was having problems seeing the video. I referred her to the flash site to update her web browser. I'm a bit torn as to what to do about encouraging participation on the site. My desire is for everyone to be really active all the time, but I have to remember that they are only committing an hour a week to this project. I also have to be careful not to try and incite activity by prompting participation. It's a delicate balance between how much control to exhibit and when to let activity emerge. stormy has been the most active of all the teachers and given their busy schedules it's understandable. stormy's blog post highlights the fact they enjoy the anonymity and trying to guess other's identity. It's set up an interesting little side project where the teachers want to be anonymous and don't want the students to know their identity. It'll be interesting to see if the students can figure out who's the teachers and who's not. I'm thinking that I would like for the teachers to be revealed later on... or leave it up to them. I also need to give them a who's who list too.
>
> There also seems a lot of interest around Gaelan's profile picture: a bathtub in a lawn at dusk. There was a lot of initial interest because Gaelan's self proclaimed inexperience with photography there was a rush to assure her of her photography and a whole dialogue has emerged around the bathtub and now Stormy has posted a photo of the railroad tracks and chairs at sunset as a response to her image and a ensuing dialogue has begun. With ethnographic observation there is an implicit awareness of being an observer in a community. The site shows when I'm online and when I'm not, so participants know when I'm "there" and when I'm not.

This was a moment where I felt the curricular component could fail. This is an anxiety in teaching online courses—a feeling that not everyone will participate fully. I started to think more about what was the difference between teaching in a embodied classroom and teaching in a digital virtual space. It became more clear to me throughout this study that it is the lack of feedback, of being able to *read* the physical emotions of your students, that was disarming, even suffocating. Bullen (1998) pointed out that this is often felt by teachers of online courses. This lack of emotional feedback can sometimes be debilitating (Smith, Ferguson, & Caris, 2002).

What also emerged was stormy's interest in trying to identify who everyone was online. I had planned on giving the teacher participants a list of student participant identities but,

at the teachers' request, I did not share it with them. They seemed to enjoy the challenge of guessing who was who.

Week 1 presented a number of events, some anticipated and some not. It also set the stage for certain collective themes emerging but not directly connected to the weekly prompt or the film. One visual stylistic trend was an interest in macro photography or in looking closely at the subject of an image as seen in stormy's feedback (Figure 5.2) and in Opti's image (Figures 5.3 & 5.4). Opti's image *World in a Seed* was a site for much dialogue on the technicalities of photography, specifically macro photography or getting in close to your subject. The subject of food also seemed to generate interest among Gaelan Knoll and Haine Walker. I posted some advice about setting up the macro function on the camera that he was borrowing from me for the project (Figure 5.4).

Artist: Opti
Title: The World in a Seed
4/20/2008 12:31 PM
Views: 15

FIGURE 5.3. World in a Seed.

Comment by Opti on April 20, 2008 at 1:04pm
Ah, sorry it didn't turn out so well. Still trying to experiment with my camera...

Anyway, for this weeks project, "How does the world around you define happiness visually?", i had to think about this one for quite a while. There was so much to that defined happiness that i had a difficult time narrowing it down to just one shot.

Fortunately, as i was walking past a grocery store one day, i took notice of the variety and abundance of fruit and vegetables. Though i was only walking by, the vibrant tomatoes on the cart gave me the idea for this weeks topic.

To me, food is what makes people happy. Doesn't matter if it's french fries or steak, food somehow puts a smile on their faces. Not only that, it's everywhere you go; keeping the theme of this weeks topic true. Inspired, I looked through my fridge, trying to find something that was eye catching Surprisingly, i found a carton of tomatoes but i also found some tomatoes that were decaying. These lead to my photo.

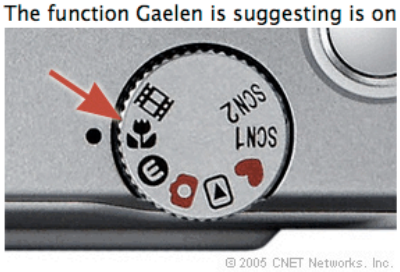
I used the ripe tomato to symbolize the happiness in the world. I placed the ripe tomato in the foreground to make it the focus of the photo and the decaying ones in the background to contrast the differences.

Anyway, i'm not quite sure what i'm getting at..... But i guess what i'm trying to say is that food, to me, represents happiness!

Comment by Gaelan Knoll on April 20, 2008 at 3:13pm
Well, that's cool, my answer is very similar to yours =). I love ripe tomatoes too, they're so bright and full, and look so juicy!

Did you try using macro to take the picture? I'm not much of a camera person, but I believe it's for close up shots....

Comment by Mr. John Charles on April 20, 2008 at 3:50pm
The function Gaelen is suggesting is on the back of the camera and looks like this:



Comment by Opti on April 20, 2008 at 5:11pm
Ya, i clicked on the macro function but it didn't focus correctly @_@ I'll keep fidgeting XD

Thanks!

Comment by Haine Walker on April 20, 2008 at 8:07pm
Yes! Food is happiness! :D I wanted to do food pictures too, but I'm not good at photographing food! DX
Anways, I like how you put the ripe ones in front and a decaying one in the back! *thumbs up to you*

FIGURE 5.4. Dialog About Opti's "World in a Seed."

I was experiencing anxiety around the issue of participation. I had certain expectations for what participants would be doing based on my experience as an art teacher. However, those expectations did not take into account the fact that my experiences were based in classrooms where I would see and interact with students daily. Again, it was not having the kinds of relationships I was used to as an educator that was at the root of this anxiety. I ended up posting my response to the weekly prompt four days into the project, hoping to provoke dialogue and activity. In my journal I reflected on feeling that I had ended up modeling the expectation of what to post. In my journal entry for April 20, I wrote:

> So after posting my billboard images, a number of participants ended up photographing shopping bags and advertisements. I'm not sure I like setting up what participants should be doing, but I got a little panicked because I had not seen any responses besides stormy's. Next time I won't post until the next week's assignment.

Whether or not I *caused* a certain response or not can not be fully understood. What I had not anticipated, though, and what was learned from interviews later, was the fact that it took a long time for the participants to think about the constraints. In an interview, Gaelan Knoll reflected on what the constraints like the Week 1 prompt required. He(she) talked about never really thinking about these kinds of questions. Having to represent his (her) thinking visually was another new experience. It reminded me that complex emergence takes time (Cilliers, 2006). If, judging from many of the interviews like the one with Gaelan Knoll, this was a way of thinking and being that is not usually encountered, then it should take time to respond.

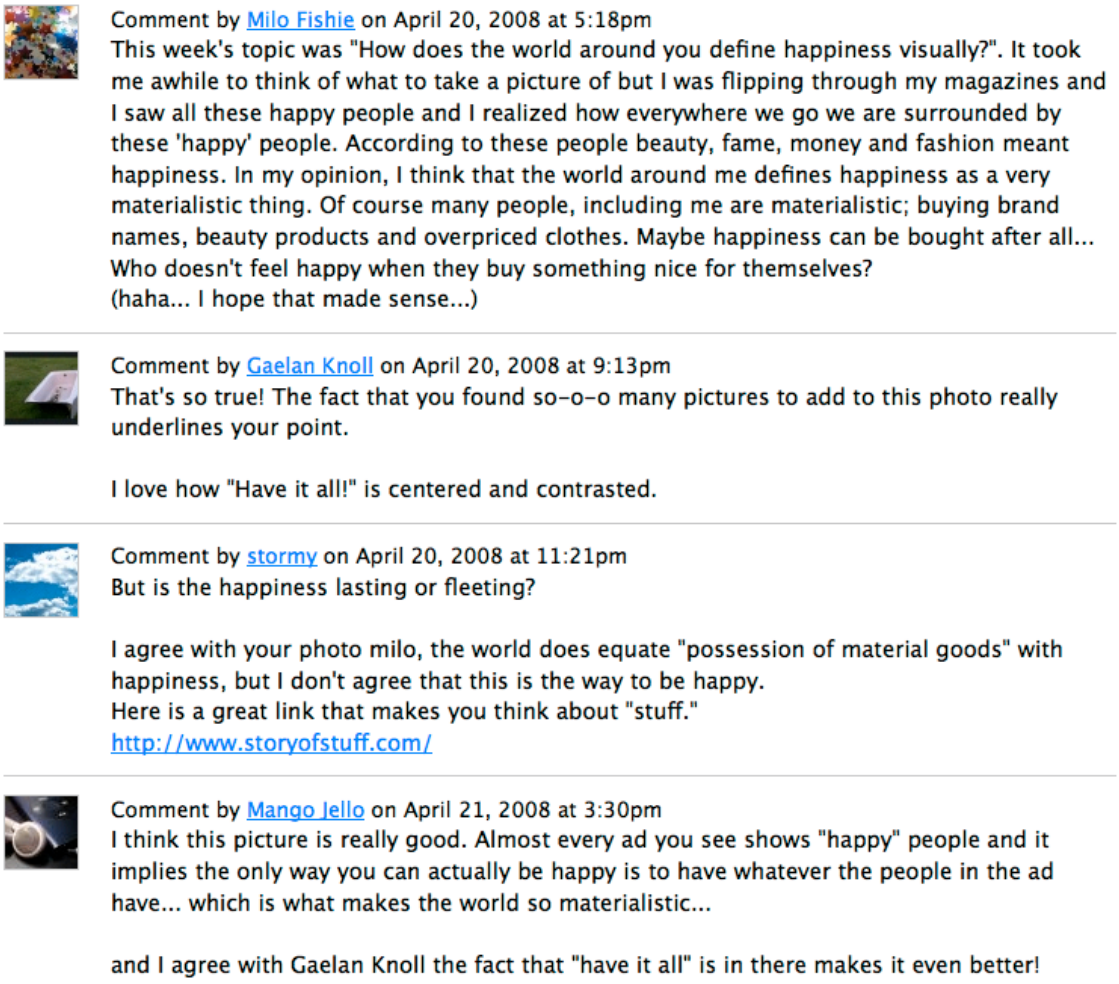
> **Mr. John Charles:** Could you describe a little bit more about how the weekly projects make you think?
> **Gaelan Knoll:** Well, some of the projects were like.... The happiness ones: like what makes you happy? How does the world think of happiness? Those made me think. Because I never really thought about them. Then to have to represent them visually and then I had to think a little bit harder about what works.

Gaelan Knoll and Milo Fishie used macro photography to get in close to the printed advertisements they photographed. In Week 1, consumer culture became a site for examination when addressing how our own culture shows us what happiness is and how to get it. This was influenced by the prompt, the *Euphoria* clip, and what I had assumed

was my response. However, the participants' responses varied with their attitudes and ideas around consumer culture. Milo Fishie's response (Figure 5.5) sparked a dialogue that exhibits conflicting ideas around consumer culture. Already stormy and I had posted images and a video that critically looked at how consumer culture interprets and presents happiness. I interpret the students' responses as much more nuanced than stormy and my responses (Figure 5.6).

Artist: Milo Fishie
Title: Week 1 Project
Description: "How does the world around you define happiness visually?"
Posted: 4/20/2008 4:32 PM
Views: 95

Figure 5.5. Milo Fishie's Week 1 project. Milo Fishie's response received the most views of any image during the study. A number of factors were at play in this, one being that the more views an image got in this site the more it came up under the filter *Most Viewed Images* in the photo section of the site. Also, if participants were commenting on the image, that activity would show up in the *Recent Activity* section. The act of looking in social network sites does have an affect and it is not passive.



Comment by Milo Fishie on April 20, 2008 at 5:18pm
This week's topic was "How does the world around you define happiness visually?". It took me awhile to think of what to take a picture of but I was flipping through my magazines and I saw all these happy people and I realized how everywhere we go we are surrounded by these 'happy' people. According to these people beauty, fame, money and fashion meant happiness. In my opinion, I think that the world around me defines happiness as a very materialistic thing. Of course many people, including me are materialistic; buying brand names, beauty products and overpriced clothes. Maybe happiness can be bought after all... Who doesn't feel happy when they buy something nice for themselves?
(haha... I hope that made sense...)

Comment by Gaelan Knoll on April 20, 2008 at 9:13pm
That's so true! The fact that you found so-o-o many pictures to add to this photo really underlines your point.

I love how "Have it all!" is centered and contrasted.

Comment by stormy on April 20, 2008 at 11:21pm
But is the happiness lasting or fleeting?

I agree with your photo milo, the world does equate "possession of material goods" with happiness, but I don't agree that this is the way to be happy.
Here is a great link that makes you think about "stuff."
http://www.storyofstuff.com/

Comment by Mango Jello on April 21, 2008 at 3:30pm
I think this picture is really good. Almost every ad you see shows "happy" people and it implies the only way you can actually be happy is to have whatever the people in the ad have... which is what makes the world so materialistic...

and I agree with Gaelan Knoll the fact that "have it all" is in there makes it even better!

Figure 5.6. Dialogue about Milo Fishie's Week 1 project.

Rick O'Shay (Figure 5.7) posted his piece as both an image and blog post, examining how, as a culture, we have come to consume too much. This was a concern of stormy's, as seen in Figure 5.6. stormy posted a link to a Web-based documentary called *The Story of Stuff* by Annie Leonard (2007). The 20-minute film describes the linear life span of all of our consumable stuff. The premise of the film is that modern consumerism is a linear model of extraction, production, distribution, consumption, and disposal (Leonard, 2007). The film argues that this model is not sustainable on a planet with finite

resources. At the end of the film Leonard presents some non-linear sustainable economic models.

Artist: Rick O'Shay
Title: Week One Project - Society's Happiness
4/22/2008 10:25 PM
Views: 15

Comment by Rick O'Shay on April 22, 2008 at 10:37pm
As human we depend on certain items for our survival. Food, water and shelter were our original necessities in life. Today, society has become dependent on material possessions, our cars, what we eat and how much money we make defines our success in the world. We have become more obsessed with how we are looked upon by others rather than fulfilling our own personal needs. It seems our wants have moved up the pyramid of into needs...

FIGURE 5.7. Rick O'Shay's Week 1 Response.

How students approached this issue was in contrast with how the teacher's, including myself, approached the topic. Student participants seemed to have a more nuanced response, being able to recognize its drawbacks yet still acknowledging they were

deriving pleasure from it. This can be seen in Milo Fishie's description of her image and how it contrasts with Rick O'Shay's.

WEEK 1 ANALYSIS

At this early point in the curriculum, there were a number the threads emerging. First, I was experiencing an unexpected anxiety. This stemmed from a qualitatively different kind of pedagogical experience. However, my fears that I would directly influence all the participants' responses through my own work as an artist reflected an ego-centric perspective of my pedagogy that I was not previously aware of. From the kinds of dialogues and responses posted, I was able to observe that, in fact, there was quite a range of ideas and opinions brought into this space. The second thread was around the constraint. Even though I have written about constraints in the art classroom (Castro, 2004, 2007) requiring different relations with the our interpretive framing of the world and the difficulties that students encounter, I was reminded of the need to let thinking and inquiry emerge. And the third thread was this emerging theme of sustainability in the online dialogues and posted images. It was a theme that I did not anticipate nor expect. This analysis formed the next iteration in the Week 2 prompt and *Euphoria* clip.

WEEK 2

The Week 2 prompt was designed deliberately, both to act as a summary of the previous week's activity and to point towards the next iteration of inquiry. By summarizing the previous week's activity, I presented my interpretation of our dialogue to the collective as a way to show how each week's project was in response to our collective inquiry. Sustainable and unstable activity was selected as the theme based on the Week 1 analysis. In 2007, before the current economic recession, the environment and sustainability were foremost in the minds of most Canadians as one of the most important political issues (R. Smith et al., 2007). It is an issue that is still important, especially in the greater metropolitan area of Vancouver. While the film *Euphoria* explores ideas of sustainability in terms of happiness and the body, the word is not totally unfamiliar to the participants, including students. Here is how the Week 2 project was presented:

> Last week we watched the first clip of the film *Euphoria*. It used visual metaphors to explore some images of happiness. This week we are going to view a longer clip where the main character (Lee) explores the word euphoria. He uses visual metaphors again to explore how euphoria happens

> in the brain. He makes a distinction between euphoria and dysphoria. Dysphoria is what happens after a spike of a unsustainable euphoria- the let down after a big high. Last week Milo Fishie posted a photo of a collage they made addressing the question: How does the world around you define happiness visually? A great series of comments followed and stormy's question: "But is the happiness lasting or fleeting?" inspires this week's question:
>
> *What around us presents the kind of unsustainable (happiness that doesn't last or build off of itself)* euphoria *explored in the film?*

By Week 2, less than half of the participants had posted images in response to the Week 1 prompt. This again was a source of anxiety for me as a researcher and teacher. I was experiencing a conflict of wanting to gently remind participants that I was there to help them, without trying to provoke responses so as to produce more data and participation. In this week, I attempted to develop my role as a *consciousness of the collective* by folding the participants' insights and dialogue into the week's project and beginning to connect participants to ideas outside of the site. This was about connecting what participants brought to this space from their local knowledge and artistic inquiry, and tracing connections and associations drawn from my own perspective and history. Participants' ideas and artworks prompted the occasion to teach.

For example, Opti posted a quizzical image that was posted sideways (Figure 5.8). Since the title of the image was *Music Juxtaposition*, I assumed this was deliberate. One of my actions as an art educator on the site was to connect participants with artworks that, in my interpretation, related to what they have posted. For Opti's image, I posted images and links of and to local artists Rodney Graham and Jeff Wall. The sideways image of a street scene with a music instrument on the sidewalk reminded me of Rodney Graham's images of upside-down trees and Jeff Wall's constructed landscapes. This also created an opening for stormy to further elaborate and extend a tracing of associations in art history. The participants' knowledge, as represented in their textual responses and images, became the occasion for stormy and me to point towards relationships with art and culture (Figures 5.9 and 5.10).

Artist: Opti
Title: Music juxtaposition
Posted: 4/20/2008 12:29 PM
Views: 27

Comment by Sophie Lee on April 20, 2008 at 3:51pm
this photo is very intersting :)

Comment by Opti on April 20, 2008 at 5:13pm
Hehe, thank you!

Comment by Haine Walker on April 20, 2008 at 8:04pm
Awesome, I love this one! :D

Figure 5.8. Music Juxtaposition.

Comment by Mr. John Charles on April 25, 2008 at 7:37pm
This photo really makes me think... like why is it sideways, why is this violin case all by itself on the sidewalk? Check out the work of Vancouver photographers Rodney Graham,
http://en.wikipedia.org/wiki/Rodney_Graham

and Jeff Wall
http://www.moma.org/exhibitions/2007/jeffwall/

FIGURE 5.9. Response to Music Juxtaposition 1.

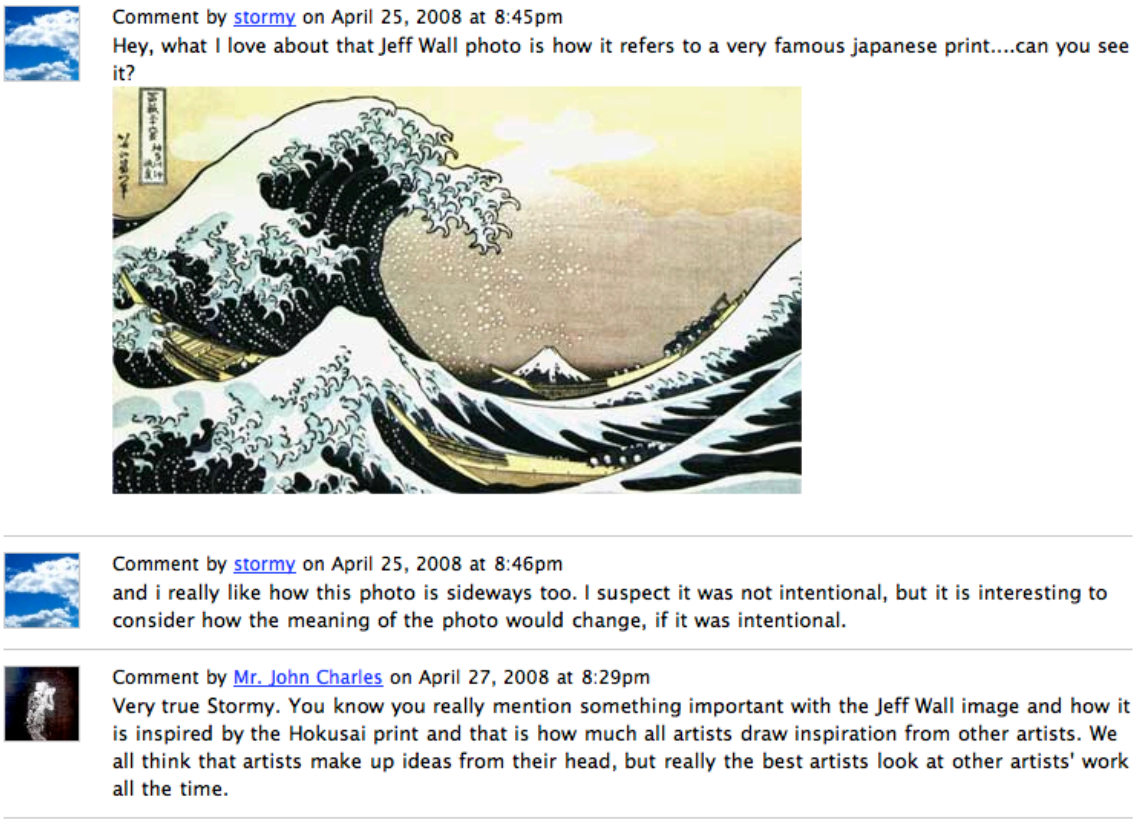


FIGURE 5.10. Response to Music Juxtaposition 2.

Week 2 also provided the space for Haine Walker to examine his(her) own social relationships (Figures 5.11). This was a matter of concern for Haine Walker—to be able to inquire through art into the social tensions and anxieties he(she) experienced as a teenager. In contrast to Haine Walker's response to Week 1—posting a large amount of images—he(she) took considerable time planning and organizing his(her) images. At both the midpoint and final interviews Haine Walker mentioned that this week's project was the most meaningful.

> **Mr. John Charles:** So what was you favorite project so far?
> **Haine Walker:** It was the temporary happiness one. For that I took my friends and I said, 'we are doing a photo shoot!' I thought temporary happiness for teens, because a lot of teens are going for that high school crush… 'oh I like this person' but usually it is like not. It is just for the sake of liking someone. And then when they get with someone they are usually like … 'oh I don't like this person anymore.' But you were so into them I thought you were going to

get married or something. I have a friend that is like that. So I thought that was like temporary happiness. Like an illusion. You don't really like someone, it is just a crush. There are really good couples in high school but there are not as many, supposed couples. And there are good couples, but couples have arguments every so often. So that is like temporary happiness, at the moment.

Artist: Haine Walker
Title: Gang
Description: Week 2: Temporary Happiness. From our mini-photoshoot, this just came to be my most favorite picture. Friends, they're there for you and the fun times are spent with them. Sometimes friends break up though. The model on the left is doing a "peace" sign with her hands, but I accidentally edited that out! D:I also edited out the signs. Much thanks to the models.
Posted: 4/24/2008 5:49 PM
Views: 13

FIGURE 5.11. Gang.

In Rick O'Shay's Week 2 response (Figure 5.12), his image of a gas station with 0.00 for the price of a liter of petrol, prompted Opti to take an appreciative stance in his response. Rick O'Shay took the opportunity to describe his thinking behind the image in response to Opti's comments about the benefits and drawbacks from free gas.

Artist: Rick O'Shay
Title: Week 2 - Unsustainable Happiness
Posted: 5/5/2008 11:20 PM
Views: 19

Comment by Opti on May 6, 2008 at 9:30pm
Yay! 000.0 gas prices! No more 130.0 gas prices, please XD

Comment by Rick O'Shay on May 6, 2008 at 11:58pm
The gas station is an interesting metaphor for unsustainable happiness because it becomes a double edged sword. On the on hand life would be grand if we pulled up to fill the car and before us was a total dollar amount of $0.00. Perhaps there would be less war and less instances of violence at gas stations. But life could never sustain itself, emissions would scale out of control, everyone would buy a Navigator or a Hummer and the economy would crumble. On the other hand we see the price of gas at 130.9 and we shrug our shoulders and swipe the card collecting just a few more air miles for our next trip to Reno. Many people make a trip to their local car dealer and trade in the gas-guzzling beast for a little Honda. This also provides them with unsustainable happiness, they love the fact the have a new car, shinny and bright, but the feeling only lasts so long... Then back to complaining about the price of gas...

FIGURE 5.12. Unsustainable Happiness.

At the beginning of Week 2, Gaelan Knoll's response to Rick O'Shay's blog posting caught my attention (Figure 5.13). The post was identical to his description of his image for Week 1. Rick O'Shay's position on consumer culture, when coupled with the theme of happiness, prompted Gaelan Knoll's response: "Happiness has suddenly turned negative." I interpreted this as a significant event. Rick O'Shay, stormy, and I were actively posting and promoting a critical inquiry into consumer culture. Here Gaelan Knoll challenges this critique, and in another way, challenged what we were doing as teachers.

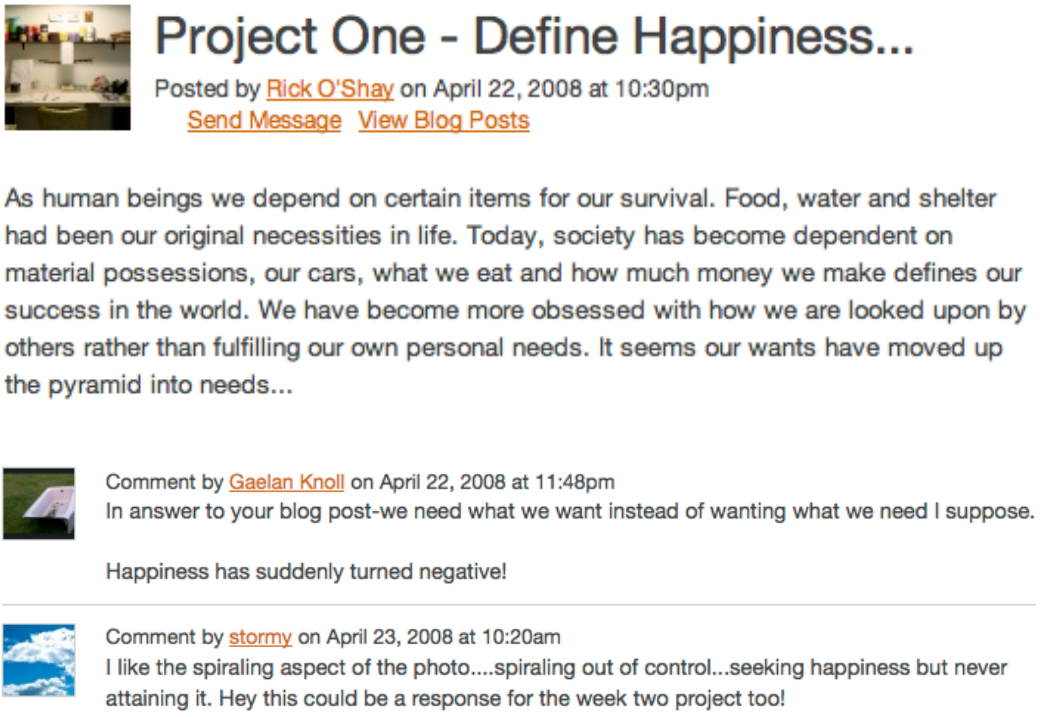


FIGURE 5.13. Define Happiness....

Gaelan Knoll's response to the Week 2 project was also unexpected. Gaelan Knoll, in his(her) image *Relief* (Figure 5.15), seemed to offer a defiant and markedly different interpretation of the prompt by deciding to draw attention to the affective physiological qualities of relief. Rather than take on the unsustainability of certain actions, as explored in the film, or of consumer culture, he(she) decided to examine the physiological or phenomenological embodied experience of relief. Given Gaelan Knoll's previous responses to Rick O'Shay's Blog post and the Week 1 project, I interpreted the image of a flushing toilet as a possible act of transgression.

Artist: Gaelan Knoll
Title: Unsustainable Relief
Description: unsustainable happiness-in the form of a flushing toilet (week 2 project)
Posted: 4/28/2008 9:00 PM

Comment by Gaelan Knoll on April 28, 2008 at 9:06pm
So while I sat pondering the idea of unsustainable relief-I felt a sudden urge to use the washroom. Throughout that day, I came to the conclusion that the feeling of relief after one uses the washroom doesn't last very long, especially if you consume plenty of liquids. No matter how many times you 'go' you'll have to return not too long afterwards (I think it's called nature).
I actually took a close up picture of the toilet, but it was really gross.

Comment by Gaelan Knoll on April 28, 2008 at 9:06pm
Black and white for your protection =)!

Comment by Haine Walker on April 28, 2008 at 9:48pm
Yay for black and white!
Anyways, I think this is a pretty good picture for week 2's project! It's very effective. :D
I agree with what you said, temporary happiness is like a toilet. It's there, then later, FWOOSH! It's flushed away... okay, maybe not exactly like that, because that's kind of gross. But forget my analogy, I think your photo works! :D

Comment by stormy on April 28, 2008 at 11:36pm
a very original response and a great shot too.

Comment by Gaelan Knoll on April 29, 2008 at 11:42pm
Thanks!

FIGURE 5.14. Unsustainable Relief.

WEEK 2 ANALYSIS

In Week 2, my anxieties around participation were situated in an understanding that teaching online involves a different kind of dynamics. As the site became propagated with almost 100 images I was able to start responding to the knowledge that was represented by the participants. This offered an opportunity to trace associations drawn from my own embodied history as an artist and educator. This also prompted stormy to do the same, and to trace whole different sets of associations to the ideas represented by participants. It was in the space between the participants and their ideas that stormy and I were beginning to act as *consciousnesses of the collective.* Mary Lou and Lucy MaGee at this point had not posted any content beyond their profile images. What was also beginning to emerge was an understanding of how the constraints of the prompt and film clip were being woven into the dialogue–meaning, I was interpreting Gaelan Knoll's response as a response to our critical positions. He(she) offered a new interpretive possibility from our convergence onto one interpretation. It was from this interpretation that I decided to shift the following Week 3 question into one that offered a space where participants could now examine a different kind of happiness by inquiring into those people in their lives that engaged with their world in meaningful ways.

WEEK 3

The Week 3 project marked a shift from the kind of constraints utilized in Weeks 1 and 2. Week 3 was about looking at, or for, those people in our lives who seem to be meaningfully engaged. The week's prompt offered an opportunity to begin tracing and identifying those associations in participants' lives, and with those people around them that engaged with the world in meaningful ways. Here was how the project was stated:

> Last week we watched our second clip from *Euphoria* about happiness that is not sustainable. Gaelan Knoll responded to Rick O'Shay's blog on this kind of "happiness" with "we need what we want instead of wanting what we need I suppose. Happiness has suddenly turned negative!"
>
> Well, this week's project takes a turn for the positive. In this week's clip we'll watch Lee explain what he means by lasting, sustainable happiness through meaning making. It inspires our Week 3 Project question:
>
> *Who around you engages with life meaningfully? Create a portrait (that doesn't show them directly) that shows how they engage with life meaningfully. You can create a photo or interview them with the video function on your digital camera (for example). Share their story with us.*

Kezia's response (Figure 5.15), her first for the project, of her toy robot in a cactus pot, caught me by surprise. I decided not to dismiss the image as an ironic response, but rather to respond and to allow her to describe her own thinking around her decisions (Figure 5.16). Participants stormy and Haine Walker appreciated the playfulness of the image. In that same vein, I engaged in my own playful dialogue about robots, even suggesting she take a look at a toy robot dinosaur. I had learned from Week 2 and Gaelan Knoll's response to engage in dialogue around student's knowledge, no matter where it comes from or what it represents.

Artist: Kezia
Title: a man a plan. week 3 project.
Description: Who around you engages with life meaningfully? Well, my robot here does.
Posted: 4/28/2008 11:07 PM
Views: 29

FIGURE 5.15. A Man A Plan.

Comment by stormy on April 28, 2008 at 11:37pm
ha ha. I laughed when I saw this. so awesome.

Comment by Kezia on April 29, 2008 at 10:31pm
haha thank you =]. i think its cute, and shows how even though robotic as we can get with our routinely lives, we still can engage in life meaningfully through understanding and caring for our surroundings and our environment.

Comment by Haine Walker on April 30, 2008 at 7:30pm
I like your analogy and this is a cute photo! <3

Comment by Mr. John Charles on May 2, 2008 at 9:54am
Fascinating on a number of levels because it raises a lot of different things that I think about. Who but a robot, with "steel skin," interact that closely with a cactus? Are we learning from the robot that our environment and surroundings aren't always comfortable, but something we need to be responsible for anyway?

It also raises the issue, for me, of co-existing with sensing, feeling and learning machines. Have you seen Pleo? It's amazing! I'm so close to buying one because I have severe allergies to cats and dogs but would like to have a pet...

Thanks for making me think!

http://www.pleoworld.com/

Comment by Kezia on May 3, 2008 at 1:56am
Wow, well those Pleo's are really something!
I never really thought about the "steel skin", but now that you mention it.... it is really interesting, how that works out, as it's true that our surroundings aren't exactly comfortable for us.

FIGURE 5.16. Responses to A Man A Plan.

Jean Valjean did not look at a specific person in his life, rather an identity. Jean Valjean posted an image depicting himself as a teacher writing on the chalkboard (Figure 5.17). He interpreted the prompt, in relation to the ideas in the film, as doing something out of duty and in service to others. I interpreted this image as Jean Valjean constructing and performing his identity into a possible actuality. He created, through an image that simultaneously honored the significant role teachers play in his life, a possible future for himself.

Artist: Jean Valjean
Title: Duty
Description: a person who does meaningful things is a teacher cuz they are giving us a chance for a better life.
Posted:5/9/2008 11:37 PM
Views: 16

FIGURE 5.17. Duty.

For stormy, this prompt provided a catalyst for the start of a series of works about a colleague she worked with who, through his clothing, represented significant moments in his life (Figure 5.18). Here, the constraint served as a space for stormy to examine a close relationship in her life in a new way.

Artist: stormy
Title: Mondays are Red: Week three project
Description: I interviewed a teacher at the school who wears a different colour shirt and matching socks for everyday of the week. It relates to the birth of his daughter. He wore purple on the day she was born, and decided that he would wear purple on every Wednesday henceforth. This image is the first of a series of five that I will be submitting for week three.

Posted: 5/12/2008 5:56 PM
Views: 29

FIGURE 5.18. Mondays Are Red.

This week, were Sunshine Ice's first posts. She responded with images of her boyfriend as someone who engages with life meaningfully (Figure 5.19). The strategy of photographing a photograph was a novel interpretive solution to the constraints of not depicting an identity, yet suggesting one.

Artist: Sunshine Ice
Title: Week 3
Description: The one who means the world to me <3
Posted: 5/5/2008 9:37 PM
Views: 16

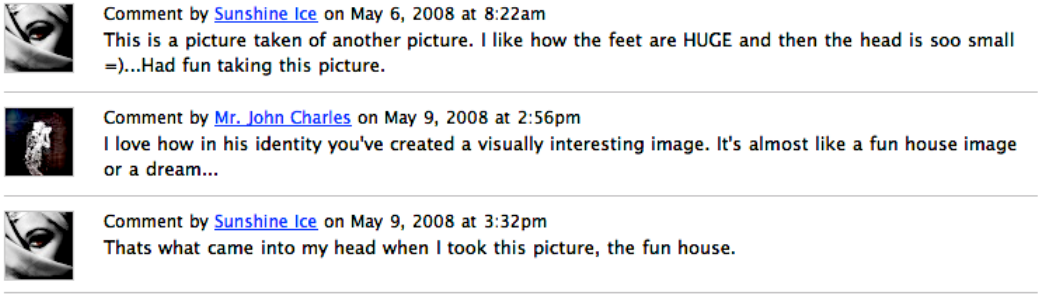


FIGURE 5.19. The One Who Means The World To Me <3.

Artist: Gaelan Knoll
Title: Pastor
Description: my week three project
Posted: 5/12/2008 7:58 PM
Views: 24

Comment by Gaelan Knoll on May 12, 2008 at 8:04pm
I decided to do my week three on my pastor. He lives his life very meaningfully-finding happiness in spreading his religion. He has mentioned how he wants nothing more than to talk to others about his religion. Last Sunday he described how he would just sit down and talk to strangers-and this brings him happiness. I think it's a very deep and meaningful happiness-where he works and works but loves and really believes in what he does. This is a room in our church where he teaches the younger generations about what he believes in.

Comment by Mr. John Charles on May 19, 2008 at 1:24pm
This is a beautiful portrait of your pastor and his work. It really captures the kind of work he does. I really like how the chairs represent the people he works with and the podium represents him... and then the light coming in from the windows represents the spiritual... at least that's how I read it. It is a powerful image.

Comment by Haine Walker on June 2, 2008 at 8:38pm
Really nice angle, and I like how the light shines in from the window, makes the place full of empty chairs look somewhat spiritual.

FIGURE 5.20. Pastor.

Gaelan Knoll took his(her) time responding, in order to coordinate photographing the classroom where his(her) church pastor taught (Figure 5.20). For Gaelan Knoll, the space of the classroom his(her) pastor taught represented visually someone he(she) thought was engaged in working with people in meaningful ways. Here, I also used the opportunity to share my own interpretations with participants, to share with them how I was understanding their images. Terry Barrett (1997) talked about the importance of sharing our descriptions and interpretations with students as a way to articulate how we encounter their art.

WEEK 3 ANALYSIS

In terms of overall participation, during Week 3 some participants began responding for the first time and some of those who began the project were not posting at all. Many said that the demands of school and home life were leaving little room in their busy schedules to watch the videos, respond to each other, and make images. There was a challenge to this week's prompt, which I had not anticipated. This related to an exchange that took place, when participants asked me for advice and clarification on what they should photograph. Sunshine Ice, Haine Walker, and stormy all had questions about what they should photograph. This is where having the film was helpful; I referred participants to specific instances in *Euphoria* by posting screen shots of scenes that used visual metaphors to communicate ideas about someone without actually showing them.

For both Gaelan Knoll and stormy this week posed a challenge. That challenge was in bringing a new interpretive possibility to their relationships with others. It was something that took time. Both stormy and Gaelan Knoll talked about how they had to give some time to think about their relationships. During this time they both expressed that there was a moment where they recognized, from an experience in their day, a connection to the prompt—which provoked a new interpretation of that relationship. For Gaelan Knoll, it was hearing that his(her) pastor found happiness in teaching and relationship-building.

> **Mr. John Charles:** How have you liked the weekly projects?
> **Gaelan Knoll:** They're fun, and have made me think really really hard. Whenever I see a new one I go "huh?" but I find that after a bit of walking around and thinking, the projects start making sense, and ideas start popping up. I actually liked Week 3- to show someone who lives a meaningful life- even though I'm...still...finishing...it....(sorry!). I got to think about what I think makes a meaningful life-I guess the project assigned coincided with a bunch of other events that were happening in my life-it just made me sit and ponder. I'm planning on interviewing my pastor now.

For stormy, it was seeing a colleague in a new way, reinterpreting an already familiar story and representing his meaningful engagement through her series of images. Theorized and enacted here, constraints that enable offered a reshaping of interpretive framing of a possibility landscape. The possibility landscape in both Gaelan Knoll and stormy's lives was not unfamiliar; yet, through the context-sensitive constraint their interpretive frames were reshaped and their relations to those features shifted. Context-sensitive constraints are incomplete openings, similar to the relational qualities of new media art: incomplete and dependent on participation and local embodied knowledge.

WEEK 4

From here we moved to Week 4. At this point in the project there were over 150 images posted to the site. I was beginning to understand participation through new and social media as *the possibility to participate* when able or desired, rather than as having as many of the participants posting as much as possible (Jenkins et al., 2007). The previous weeks' projects had been primarily designed to reshape relations to the world around participants. Week 4 would now look to examine what in the lives of participants was meaningful.

Week 4 marked the final project that directly addressed the film *Euphoria*. In this week's prompt, participants were asked to respond to a clip from *Euphoria* that addressed how we can make euphoria in our own lives through meaningful engagement. The question in Week 4 was: *How do we do that in our own lives and what does that look like?* Overall, this prompt elicited the fewest posted images. Here is how it was presented:

> Last week we saw what sustainable meaning making could be. In your week 3 project responses you shared with us those around you who engage in life in meaningful ways. This week we see that for Lee making art, especially big sculptures, is really meaningful to him. We're left with an understanding that happiness is not something we buy, or eat, but is something we "build." What Lee means is that if we believe we are capable we can build our own happiness through engaging with things that are meaningful to us. *This week's project is to share with us those things that you engage with meaningfully, that bring you the kind of happiness that's sustainable.* As Lee said, there is no limit to the amount of things that we can engage with to create meaning. The challenge will be to show us what you do in a way that expresses its meaningfulness.

At the midpoint interview, Mango Jello stated that this was her favorite project because it was a chance to share one of her more pleasurable experiences: playing with her baby brother (Figure 5.21). Overall, the constraints, as embodied in the weekly projects, gave Mango Jello an opportunity to inquire through art into aspects of her life.

Artist: Mango Jello
Title: <3
Posted: 5/16/2008 4:44 PM
Views: 18

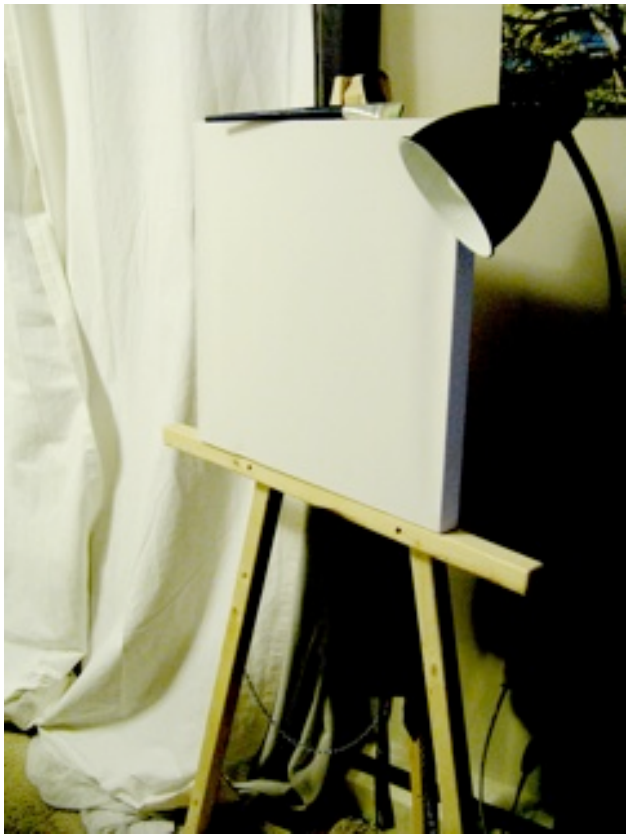
Comment by Mango Jello on May 16, 2008 at 4:54pm
This is one of my brothers (I have 4 :S)...

My family (especially my two younger brothers) bring me sustainable happiness!
:)

Comment by Mr. John Charles on May 19, 2008 at 2:12pm
What a wonderfully happy image! I really enjoy how you've captured such a joyful image (and work around the restrictions of keeping their identity safe).

FIGURE 5.21. <3.

Teacher participant Lucy MaGee posted an image of her studio as a way to communicate her ideas of engagement (Figure 5.22). In the dialogue around the image I asked to hear more about her ideas around “getting lost” in her work, contrasting it with the desire to always know where you are. I interpreted this a learning opportunity for the student participants to read about the experience of artistic inquiry from a practicing artist like Lucy MaGee.



Artist: Lucy MaGee
Title: Where I get lost... - Week 4
Posted: 5/15/2008 11:17 PM
Views: 16

Comment by Mr. John Charles on May 19, 2008 at 2:25pm
What a great image. It really captures the unlimited potentials of the clean white canvas. I'd be curious to hear you talk about how getting lost is a good thing for you since in this day and age of GPS and google maps, getting lost is a bad thing.

Comment by Lucy MaGee on May 19, 2008 at 4:39pm
Haha, Well..
I'm very good at getting lost. I don't like the idea of a GPS because some of my best adventures have come from my not knowing exactly where I am. GPS is just another way for us to speed through life and not pay attention to the our surroundings. And what for? To get somewhere 10 minutes sooner seems to be not a good enough reason. It's funny too that I've heard many people complaining that their GPS was the reason that they were late.

My getting lost in my painting is closely linked to taking time to take note of the world as us artist types draw on that for inspiration. Sometimes, I'm amazed at how much my mind wanders while I'm working and before I know it hours have gone by but it always feels like time well spent.

Comment by Mr. John Charles on May 19, 2008 at 5:36pm
Thanks!

FIGURE 5.22. Where I Get Lost...

WEEK 4 ANALYSIS

By Week 4, I noticed that my artworks in response to the weekly projects were receiving the least views. Granted, as I was the most active participant on the site in terms of hours logged, and as the researcher, my viewing of other participants' images and not my own could have skewed the view counts. However, the difference between the average views of my posted images and those of the participants was significant enough to make me question just how much I thought my own image responses to the weekly prompts were influencing the artistic inquiry of the participants. This reminds me of a long-standing issue in art education: whether or not to be a practicing artist, and if so, whether or not to share that work with students (Anderson, 1981; Ball, 1990; Szekely, 2004). The fear is that an artist-teacher model of pedagogy would only present one perspective of the world of art (Day, 1986). For whatever reason, despite my initial anxieties around a causal influence from my own artistic inquiry, participants were not necessarily looking towards my own inquiry as much as they were looking to each other.

Given the low participation for Week 4, and on consultation with the teacher-participants, it was decided that we would shift to the second phase of the curriculum. The second phase was oriented towards using the knowledge represented in the images produced from artistic inquiry as the source for new landscapes of possibility.

What also prompted this shift were certain patterns emerging outside of the weekly prompts and film clips. Jean Valjean's Week 4 response, *Generations* (Figure 5.23), is an example of how I was interpreting participants' looking at each other's images. What caught my attention was its resemblance to Haine Walker's *Land of the Dandelion* and *Sunshine Yellow* (Figure 5.24). Jean Valjean did mention in interviews that he learned through looking, though he did not name Haine's images as inspiration. Perhaps this relationship is brought more from my interpreting a similarity than by any causal influence. If there was, it was not documented or acknowledged by either of the two. What it did do was further shift our curriculum towards the second phase.

At this point there were well over 250 images posted by participants. Many of the images posted from week to week were not related to the designed curriculum. Drawing from the practices of July and Fletcher in *Learning To Love You More* and complexity thinking, the Week 5 project would incorporate the conjecture that they were learning from the images of each other into the curricular design.

Artist: Jean Valjean
Title: generations
Description: as one grows old the other grows up
Posted: 5/12/2008 4:22 PM
Views: 20

Comment by Gaelan Knoll on May 12, 2008 at 8:09pm
Whoa! How'd that happen?

Cool

Comment by Opti on May 13, 2008 at 8:35pm
Wow, super intense!

Comment by Mr. John Charles on May 19, 2008 at 2:18pm
What a great shot! You've captured a moment of this flower going through transition that few of us see...

Comment by Haine Walker on June 2, 2008 at 8:12pm
Nice! :D

FIGURE 5.23. Generations.

Artist: Haine Walker
Title: Land of the Dandelion
Description: Week 1
Posted: 4/18/2008 6:03 PM
Views: 4

Artist: Haine Walker
Title: SunshineYellow
Description: Week 1
Posted: 4/18/2008 6:03 PM
Views: 16

FIGURE 5.24. Haine Walker's Dandelions.

WEEK 5

With my interpretation that participants were implicitly drawing inspiration from each other and with a large cache of images on the site, it was appropriate to transition to the second phase of the curricular design. By Week 4, there were already collective themes of sustainability, consumer culture, and happiness. Visually, many participants were adopting a stylistic approach of macro photography or looking closely at their subject matter. Weeks 5 through 7 enacted constraints that were focused on attending to each others' images and ideas. This was a blending of features of contemporary new media art, like *Learning To Love You More*, and complexity thinking. In *Learning*, July and Fletcher ask participants at Assignment #19 to respond to a participant's response to Assignment #14. In complexity thinking, this is a recursively elaborative process, where

the results of one activity become the source for the next activity. It is a theorization of a collective of artists as a self-organizing or *autopoietic system* (Maturana & Varela, 1980, 1992). *Autopoiesis* means self-creation through the interrelationships of a complex system.

The first four weeks of inquiry generated a diversity of understandings and knowledge, and the conjecture in Week 5 was designed to inquire if a collective of artists could become the source of their own curriculum. Here is how the Week 5 project was presented:

> This week's project will be a little different. Instead of responding to a *Euphoria* film clip we are going to respond to each others' artworks.
> **STEP # 1** - For this week you are to select one (or possibly more than one) image and create a response with your own image or video. It has to be made by someone from this site and posted to this site. There are many possibilities in how you can respond, but here are just a few suggestions to get you thinking.
> -What would that person's image look like through time? Recreate the image with a video exploration.
> -Create the exact opposite of the image you're responding to.
> -Mash-up more than one image using photoshop to create a new story or theme.
> -Create the sequel image to the one you're responding to.
> THESE ARE JUST SUGGESTIONS! DO WHATEVER MAKES SENSE TO YOUR RESPONSE TO THE IMAGE.
> **STEP #2** - Post your image or video and in the comments section paste the image or screen shot (if you need help with that let me know) of the video you responded to.

Mango Jello posted an image of a red pepper, inspired by Opti's tomato image from Week 1 (Figure 5.26). This is one of three of Opti's images that was responded to for this project. Mango Jello did not know who Opti was outside of the site.

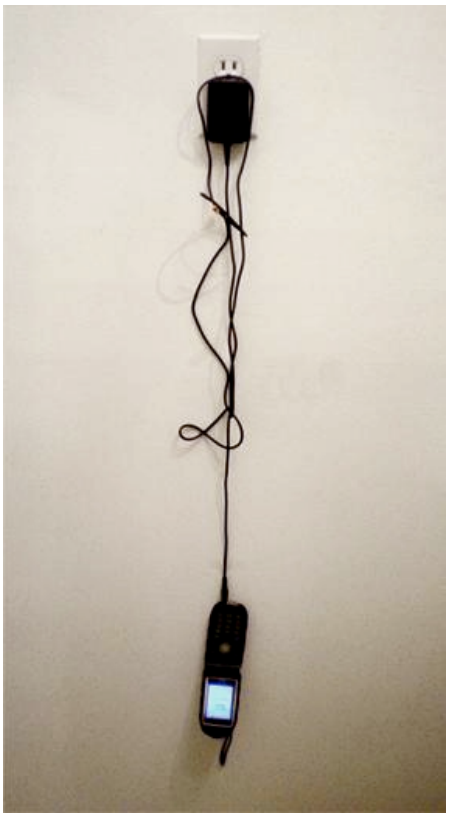
> **Mr. John Charles:** And why did you choose Opti's picture of the tomato?
> **Mango Jello:** I really liked it how it has like the idea. How it has like the rotten one in the back and the nice one in the front. Like to respond to the question. I was basically just going through all the pictures and finding one that … like if I thought of an idea. 'Oh I'll try that.' That's the one that turned out the best.... I think the idea works. Like how he set it up and everything but I think. Um, probably use macro and it will be better. Like my pictures I would play around with it to get an effect…

Artist: Mango Jello
Title: Week 5 Project
Posted: 5/24/2008 5:45 PM
Views: 31

Comment by Mango Jello on May 24, 2008 at 5:47pm
I was inspired by Opti's photo to try and take a picture of food. :)

I decided to pick a red pepper, because it was similar to Opti's tomatoes and because I liked the colours.

FIGURE 5.25. Week 5 Project: Mango Jello.



Artist: Gaelan Knoll
Title: ...recharging...
Posted: 5/19/2008 11:22 PM
Views: 29

Comment by Gaelan Knoll on May 19, 2008 at 11:23pm
I like this version better-any opinions?

-
y response to Opti's photo (it was fun hanging the phone up)-

Opti's batteries died out while they were using their flashlight...representing how happiness and light won't last very long.
So I went and took a photo of my cell recharging, I suppose this could fit into the thought of sustainable happiness where it never totally drains out.

I was in a rush to take this before the phone dropped onto the floor, and I don't really like how it came out..

And Opti's batteries were a fierce red colour, so I decided to open my cell phone to have a cooler blue colour in contrast.

FIGURE 5.26. Recharging.

Gaelan Knoll's Week 5 response was to Opti's image of the batteries from the Week 2 project (Figure 5.26). Gaelan Knoll posted two versions of the hanging cell phone for this image. In interviews, Gaelan Knoll acknowledged that he(she) revealed his(her) identity to Opti and that they were close friends. Haine Walker's Week 5 response was to Opti's image of the sideways violin (Figure 5.27). In interviews, Haine Walker indicated that he (she) did not know who Opti was in person. Haine Walker described how, upon seeing the saxophone in the grass, she referred to Opti's image from memory to make her own interpretation.

> **Mr. John Charles:** Did you think of his image when you saw the saxophone on the grass, did you think of Opti's image first or after you took the picture?
> **Haine Walker:** Opti's image is like an image by itself outside on the street. This is actually my friend's saxophone and she left it on the grass for awhile because she needed to go get something. And I was like, hey an instrument by itself on the grass and that reminds me of Opti's. And I was like oh, that would be a good response. So I took a picture.

Artist: Haine Walker
Title: Music Reflects the Musician.
Posted: 5/18/2008 4:11 PM
Views: 28

FIGURE 5.27. Music Reflects the Musician.

Sophie Lee responded to Mango Jello's image of ice cream from the Week 2 project (Figure 5.28). Sophie Lee and Mango Jello were close friends outside of the site, and had taken multiple photography courses together. The diagonal technique that Sophie is referring to was from feedback that I posted about Mango Jello's image describing the differences between static and dynamic compositions and the emotions that can be conveyed.

Artist: Sophie Lee
Title: Week 5 project.
Posted: 5/20/2008 10:37 PM
Views: 29

Comment by Sophie Lee on May 20, 2008 at 10:42pm
so i took the original object of the photograph which is icecream and presented it in a different form. i also applied the same diagonal technique to the photogrpah.

Comment by stormy on May 21, 2008 at 9:54pm
The ice cream looks amazing and luscious and delicious. I think the balance/unity/simplicity of the photo is thrown off a bit by the motifs on the bowl. Do you think this photo would be more successful if the bowl was pure white? What do others think?

Comment by Sophie Lee on May 21, 2008 at 10:05pm
maybe i can try photoshopping the image making the bowl white and see how it turns out! :)

FIGURE 5.28. Week 5 Project: Sophie Lee.

WEEK 5 ANALYSIS

There were two threads that I interpreted from the Week 5 iteration. The first was how the participants came to respond to each other's works. Of those interviewed about the project, most, including me, described how we had encountered a situation that connected to our memories of the other participant's images. Perhaps this prompting was brought about by the need to create a response to someone else's image, or it was that at some level of our consciousness (Donald, 2001), we were *searching* for patterns of commonalities from our encounters with each other's images. It can be thought of as a distributed cognition, one in which groups know together, as a collective (Bloom, 2000; Hutchins, 2000; Kelly, 1994; Lévy,1997). This shifted attention towards the knowledge of the collective as a source for further artistic inquiry. Sophie Lee remarked that this was an opportunity to incorporate her peers' ideas into her own artworks. This constraint was permission to explicitly incorporate her own ideas with ideas she admired. Rather than discouraging us from copying others' work, the constraint served as an acknowledgement that in art we can learn from looking at each other's work, by playing and elaborating with each other's ideas (Wilson, 2004).

> **Mr. John Charles:** How have you liked the weekly projects?
> **Sophie Lee:** The weekly projects are fun, it actually got me thinking a lot about life. I would be in class and start thinking about what makes other people happy. I am constantly thinking of things and composing images in my head of any possible ideas. My favorite project would be week 5 project. I really like how we can incorporate our own ideas with other people's artwork. I think that is really awesome. Sometimes it makes me sad that others have thought of such great ideas I couldn't think of and this project gives me the chance to use my own style and remake an artwork of the similar idea.

The second thread to emerge was the ways in which images were chosen. There was the obvious trend of picking your friend's image, and there were also instances of not picking your friend's image. For example, Mango Jello chose Opti's image of tomatoes from Week 2. Mango Jello, who had had over two years of photography course work, chose Opti's, who had had no prior photography training. In an interview, Mango Jello was able to describe a difference between the idea and how the ideas were represented in his image. That is, she recognized that, in her own judgment, there needed to be more clarity to the image, yet was still able to appreciate the ideas she interpreted in the image. Of all the images chosen, Opti's were responded to the most. He received three responses to six of his images posted, out of a possible 293. One was from someone who knew his physical identity, and two were from participants who did not. No

participants chose any one of the 25 images I had posted to that point, which put to rest my anxieties of being a causal influence in terms of my own art making. Overall, there seemed to be such a positive response in terms of participation rates that the teacher participants and I thought we would have everyone post a context-sensitive constraint, in the form of question or prompt for everyone else to inquire through.

WEEK 6 INTRODUCTION

The Week 6 project continued with the same conjecture from Week 5: to have a curriculum that had self-organizing properties or was autopoietic. Of course, in collaboration with the teacher participants, I was the one who was setting up the constraint and even giving examples. However, Week 6 offered an opportunity to see if we could, as a collective, provide openings for each other through self-generated constraints. In other words, what would happen if we each posted a constraint for any of us to respond and inquire through? This was the prompt as posted on the site:

> Now this might be the most difficult or easiest project yet. It all depends on your perspective. It consists of two parts, the first is to come up with a project for us to do and second to respond to someone else's' project prompt or question.
>
> **Step 1-** Post a question or project for us to complete. The question or project should challenge us to think and to see our world differently. It could be a big question like past projects or it could be something as simple as a scavenger hunt. You want to get us to look at our world differently. Here are some examples (use these as inspiration but please don't respond to them in Step 2).
>
> *-If you were to be struck blind tomorrow, what photograph would you make that shares with us how you see the world.*
> *-Make a photograph that could have this as its caption: "Is this camera telling the truth?"*
> *-Create a video that shows transformation.*
> *-Photograph a scar and write the story behind it.*
>
> These are just some examples of what you could ask us to do. You can post more than one if you'd like. I know that I haven't set due dates on this site in the past, but for this project to work we need you to post a project question or prompt by WEDNESDAY NIGHT. This is so that we can do Step 2 over the weekend.

Step 2- Choose one (or more, or all of them!) of the posted project questions or prompts to respond to. Post your image or video response and in the description list what project post you were responding to.

Here are the participants' posted constraints, in the order that they were posted on the site for the Week 6 project:

Haine Walker: I hope we're supposed to post part one here.
Anyways, we're supposed to come up with a project, so my idea is to take pictures (or videos) of what you believe is hurtful to one's happiness that happens in daily life. It could go from a picture of two people whispering in each other's ears, showing that they're gossiping or someone looking in the mirror and hating how they look. And when you post up your picture or video, it'd be cool if you could write in a simple (positive) solution to all of it. Example, for the gossip, you could write, "Ignore the drama and it will pass," or something like that. Or for the mirror example, you could write something like, "Don't fall for what the perfect body is supposed to look like,". Or something like that! Anything you believe is hurting one's happiness and the simple solution! :D

Gaelan Knoll: Everyone has a unique view of the world. We all see things differently and have different opinions. Some people have strong opinions and their views are special in that they truly believe in what they think.
My prompt is to find a person (anyone) that you feel has special views of the world that would be interesting to make a picture of. For example, they might see bad in everything, they see food in everything, or they see art pieces in everything....it's really broad, but create a photo shows the world through their point of view. I also think it would be really cool if we could photo manipulate photos for this project. For example, if the person I pick sees the world as their playground I would take a picture of the mall, and a picture of a playground, and insert a jungle gym into the middle of the mall, or something like that. If it's not possible to do this, a photograph of the world through someone else's eyes would be neat too I imagine.

Mango Jello: The project I came up with is to take macro pictures of anything you can find.... but take the picture in a way that people will have to guess what it is.

stormy: My idea is for you to take a picture or create a video to give inanimate objects a human emotion. For example, what does a sad tomato look like? Or a happy teapot. Has anyone seen this ad for an ikea lamp? http://www.youtube.com/watch?v=uFztDZRtplw

Opti: Wow, i was so stumped by this week's project. But i finally found something! (i hope...)
As i was at Save-on-foods, i was buying some nutella... and it was expensive! About $8 a jar! This inspired me for this weeks project.
I believe our lives are very precious and much more easy than those people in third-world countries. In other words, we are a lot more fortunate than those who struggle with life everyday. I think we should take the time to appreciate how lucky we are. For example, to be able to go to school, have the opportunity to have a job, stay in a well-built house, drink fresh, clean water, and to buy luxury items are all things that we probably take for granted. So, my idea is to take a picture of something meaningful/important that you take or may take for granted.

Lucy MaGee: I've been thinking about how small actions have a ripple effect on the world and result in larger, more significant events in other's lives. How something that we may not think about for more than a second has an impact on our community, country, or world. With your photos or video show us something that is nearly a daily event in your life but will impact someone else's on a larger scale in a chain of events or a single image.

Jean Valjean: Although most objects in your life just gives you temporary happiness but there are object that you own that brings you more than just temporary happiness. So my question is: what is an object to you that is more than just an ordinary object for you. Take a photo of it or make a video."

Sophie Lee: Inspired by week 1 and 2's project and Haine's question, my question for this week's project is "Can money really buy happiness?"
There's no right answer to this question, it depends on how you look at it. It is also a very controversial matter, some people say it can, others argue it cannot. So tell us your answer through a photograph. It could be anything like a poor family living in a very small and damaged house with big smiles on their faces sitting in a big circle talking. Another example could be showing a very miserable girl with tons of shopping bags in the background.

Milo Fishie: As time passes on, I look back and realize how much a person can change through life experiences and the decisions we make. I know that I don't want to forget what I was like in the past but sometimes the memories just run away. So my topic is...
If you were to take a photo/video to show the future you (around 80-90 years old) what was meaningful to you or what you were like, what kind of picture would you take?

Mr. John Charles: Post a photograph or video of a place or a visual metaphor of a place that is important to the story of who you are. This place can be somewhere far away or close to home (just don't make it home to

> project your anonymity), it can be somewhere you go to often or have only been to once, as long as it is important to you.

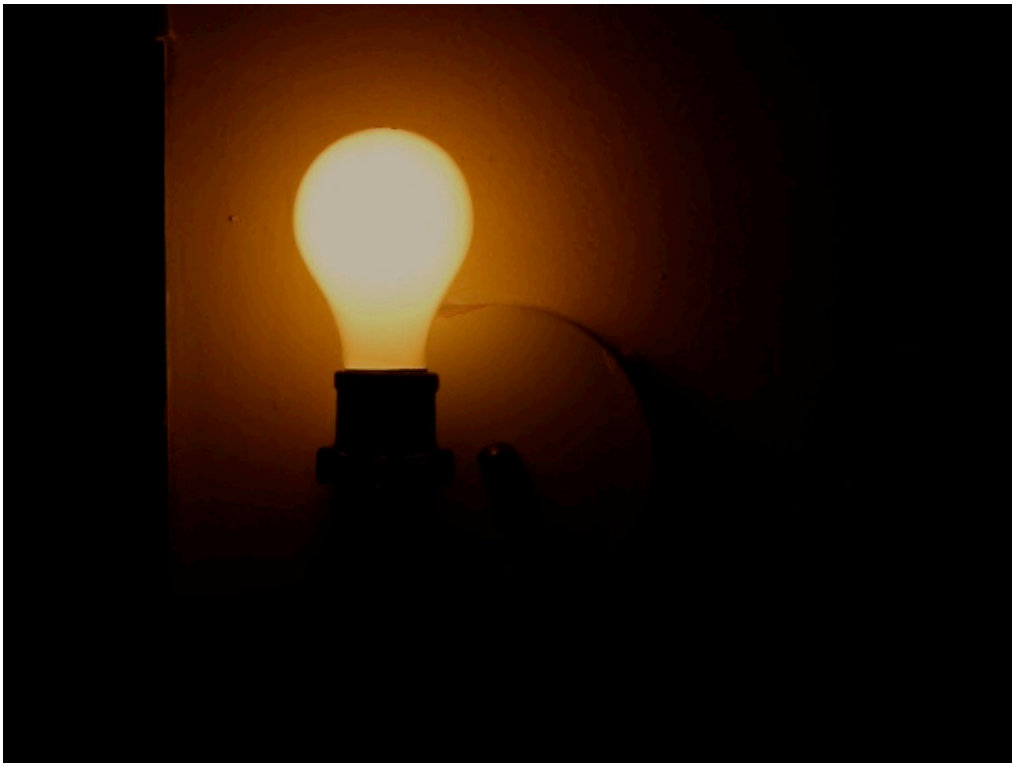
In each participant's post, there were associations with ideas from prior encounters in this curriculum. There were the questions that addressed happiness, like those of Haine Walker, Jean Valjean, and Sophie Lee; and there were the ones around our actions, perspectives, and our environment, like the prompts offered by Gaelan Knoll and Lucy MaGee. There were also the themes of looking closely, as in Mango Jello's prompt; of dealing with identity, as in Milo Fishie's, and of issues of place, as in mine. For the most part, one could trace each idea embodied in these prompts to earlier questions and posted images. The only really conceptual constraint in the Week 6 prompt itself was that the question or prompt had to challenge us to see the world differently through our artistic inquiry. Simply, it had to reference what we already knew, our prior actualities, and ask for us to engage in the reshaping of how we interpret both prior and possible actualities. Milo Fishie and stormy's prompts could be traced to having to create a metaphorical self-portrait as a profile picture; the prompts of Haine Walker, Jean Valjean, and Sophie Lee could be traced to the earlier inquiries into happiness; those of Opti and Lucy MaGee into issues of sustainability that were brought up in discussions; that of Mango Jello, to her personal inquiry into looking closely; and that of Gaelan Knoll into his (her) interest in a multiplicity of world views. Each participant, through this new and socially mediated experience, was both referencing prior actualities and creating new ones shaped through engagement with the collective's knowledge system. Opti's prompt elicited the most responses: five. stormy's prompt was the second most responded to, with four, and Mango Jello and Lucy MaGee both elicited two. In this week's prompt I responded to each prompt and also changed my profile image to reflect a change in how I perceived my role in the collective.

Artist: Haine Walker
Title: water
Description: Week 6- This is a response to Opti's idea of taking a picture of something meaningful/ important that we take for granted.
What I think we take for granted alot is water. So many people drink pop, soda, coffee, etc. And even though those things have water in them, people don't stop to think where'd they be without it. I took this by tipping a cup of water upside down. I edited the brightness/contrast a bit in photoshop, but that's it.
Posted: 5/24/2008
Views: 29

FIGURE 5.29. Water.

Artist: Mango Jello
Title: Week 6 Project[2]
Description: Something that is important, but is always taken for granted- running water [Opti's Project]
Posted: 5/24/2008
Views: 36

FIGURE 5.30. Mango Jello's Response to Opti's Prompt.

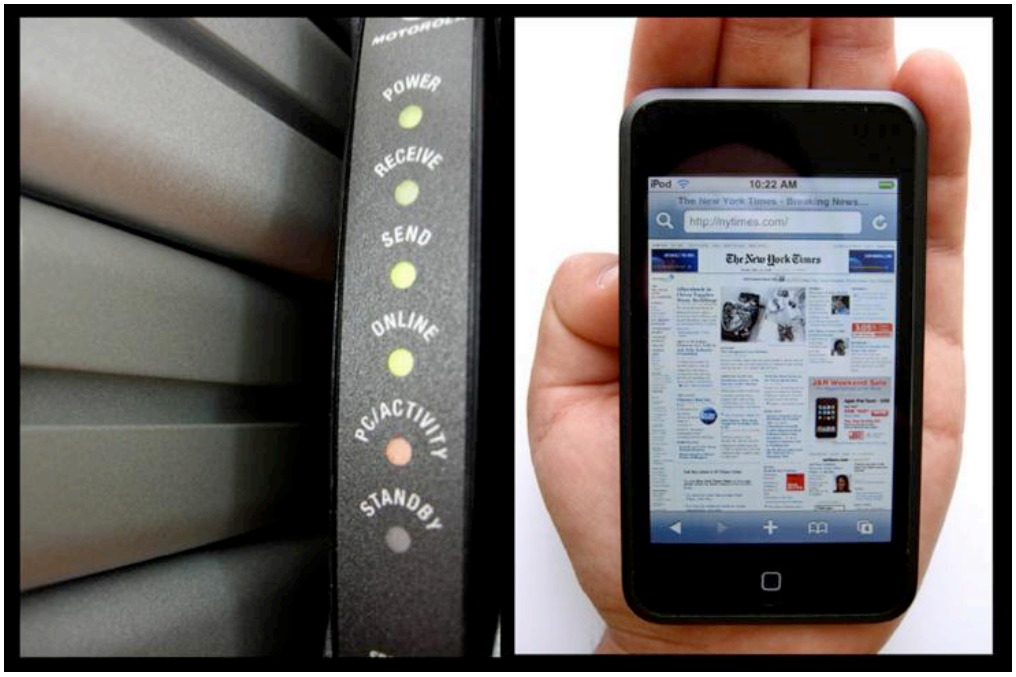


Artist: stormy
Title: fading light
Description: I am responding to the project where we are supposed to take a picture of something we take for granted.
Electricity and energy....Light.
Posted: 5/30/2008
Views: 18

FIGURE 5.31. stormy's Response to Opti's Prompt.

Artist: Sophie
Title: Paper.
Description: paper is something i feel we take for granted. paper is something that isn't exactly expensive and so we tend to waste a lot of them. just think how many trees need to be cut down for this... soo recycling the paper is always a good idea!
Posted: 5/26/2008 6:40 PM
Views: 19

FIGURE 5.32. Sophie's Week 6 Response to Opti's Prompt.



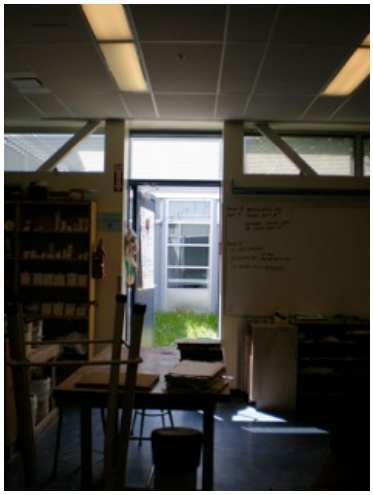
Artist: Mr. John Charles
Title: TAKE FOR GRANTED
Description: This image is in response to Opti's prompt. My first idea was fresh water, which is something I am always taking for granted. Then I thought what would I do with out the Internet!? I always find myself "cut off" from the world when I don't have an Internet connection. In fact sometimes it feels like I'm missing a limb or a sensory function.
Posted: 5/25/2008 8:29 PM
Views: 14

FIGURE 5.33. TAKE FOR GRANTED.

Artist: Sophie Lee
Title: fix me please, will you?
Description: this is a response to stormy's project - taking a picture to give inanimate objects a human emotion. i was going through my shelf, and i see this car model... i looked at it and thought the headlights looked like eyes ... so i thought about stormy's project
Posted: 5/26/2008 6:40 PM
Views: 17

FIGURE 5.34. Fix Me Please, Will You?.

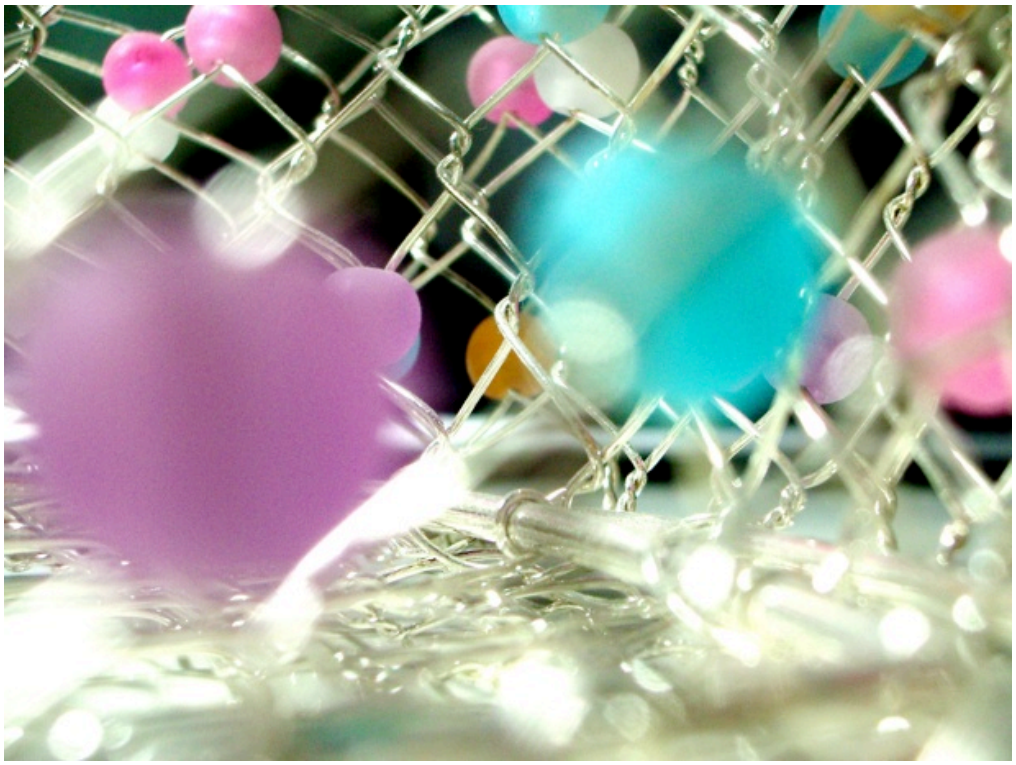
Artist: Mr. John Charles
Title: NIGHT CHAIR
Description: In response to Stormy's prompt. I choose this image of the chair because like the lamp in the Ikea commercial certain objects are anthropomorphic (having human characteristics). Having dramatic lighting helps too! This is a moody image... what mood does it suggest for you?
Posted: 5/25/2008 8:28 PM
Views: 18



Artist: Opti
Title: Roomy
Description:Well, this picture was actually taken by my friend on my camera and i thought it was perfect for Stormy's idea about giving inanimate objects emotions.
Instead, this picture focuses on a whole picture rather than just one object. You can interpret the point of view from the garden on the outside, or the darkened room in the foreground.
Posted: 6/1/2008 10:51 PM
Views: 9

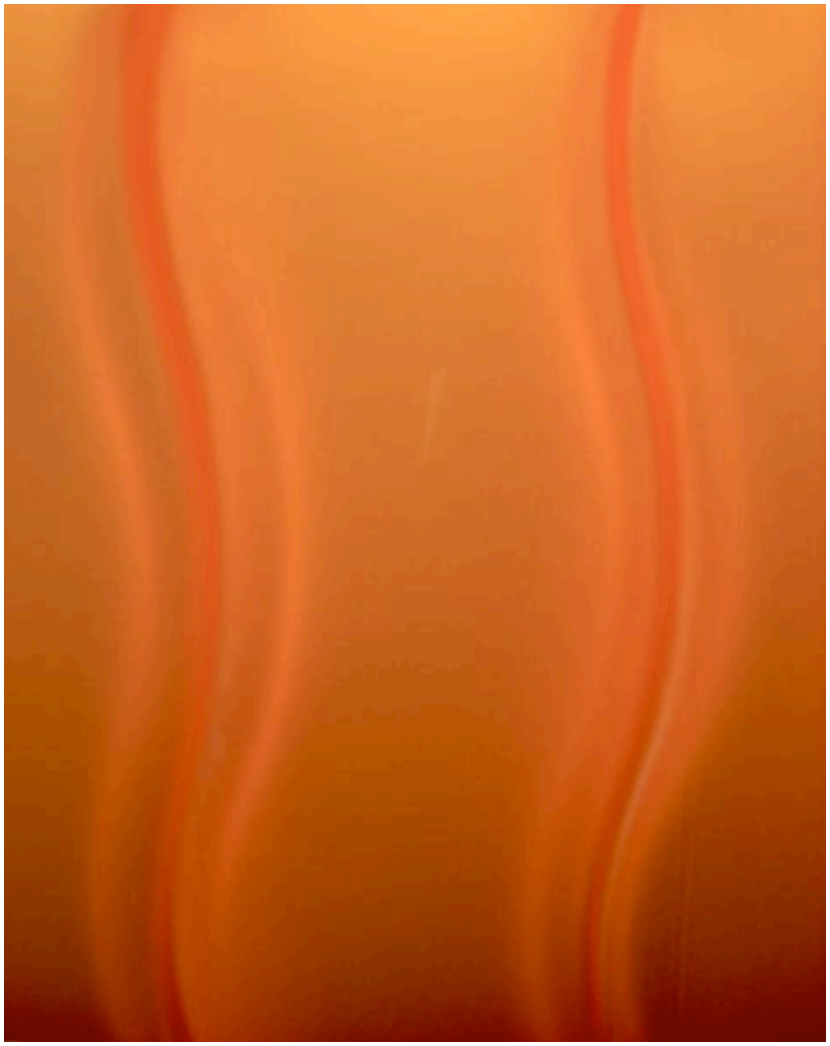
Artist: Lucy MaGee
Title: Where's Hariette? - Week 6
Posted: 5/26/2008 10:00 PM
Views: 17

FIGURE 5.35. Responses To Stormy's Week Six Prompt.



Artist: Sophie Lee
Title: Macro 2
Description: another macro picture
Posted: 5/26/2008 6:40 PM
Views: 25

FIGURE 5.36 Response To Mango Jello's Week Six Prompt.



Artist: Mr. John Charles
Title: ABSTRACTION MACRO 2
Description: In response to Mango's macro prompt...
Posted: 5/25/2008 8:28 PM
Views: 15

FIGURE 5.37. Abstraction Macro 2.

Artist: Jean Valjean
Title: littering
Description: this image is in response lucy's week 6 part 1. I was thinking for a long time but didn't have anything until one day i was walking and i saw a guy in front of my holding a empty bottle in his hand. As i continued to walk he drop the bottle on the ground and kept on walking but when i slowly came closer to the bottle i remember a discussion i read last night about something that we do in a second but has a effect on us and the environment so i decided to do littering btw i recycle the bottle in the end. ^^
Posted: 5/27/2008 9:04 PM
Views: 11

FIGURE 5.38. Littering.

Artist: Mr. John Charles
Title: HIDDEN ECONOMY
Description:This image is in response to Lucy's prompt. I find myself drinking a lot of bottled water even though I know this is not a sustainable environmental practice... Although one thing I noticed when I moved here to Vancouver was how recyclable bottles had value and in many ways support a whole economy and way of life for many people. It's so apparent that the city started putting little racks on the outsides of trash cans to place your bottles so independent collectors didn't have to dig through the trash. What would happen if no one used recyclable materials that could be collected and refunded? What would happen to this hidden economy?
Posted: 5/25/2008 8:29 PM
Views: 7

FIGURE 5.39. Hidden Economy.

Artist: Gaelan Knoll
Title: Sparkling Inspiration
Description: Well, this is my response to Mr. John Charles' prompt- to take a photo of a place that is important to the story of who you are. The art room is by far the most important place in my life. It's where I was first introduced to this dizzying world of art, and its where I've spent countless hours drawing, painting, and improving myself. I feel a connection to this room-there's a warmth in here that I can't find anywhere else. When I don't feel like going home, I head for the art room. When I feel like being alone, I head for the art room. When I feel drained and out of energy, this is the place to go. I don't know whether its the colourful, worn supplies, the light coming in from the windows, the sound of birds hanging out outside in the courtyard, or the strangely familiar atmosphere..I always feel at home in this room. I can honestly say that I love this room- and I'm glad I've been given the chance to show my views! I took a picture of the...uhm...supply corner...this one of the most useful areas of this room for me, it has eeeeverything!
Posted: 5/28/2008 8:52 PM
Views: 10

FIGURE 5.40. Sparkling Inspiration.

Week 6 Project and my new Self-Portrait

This has been an intense weekend of art making, one that I haven't had in a loooong time! I gave myself the challenge of respond to each prompt in part one and I think I got them all. I was challenged to think about my life in ways that I haven't in a while, wow. Since I feel like I've kind of changed through the process I'm changing my self portrait from resource/tech-support/ manager of this site to an active artist. This stencil of a photographer is by a graffiti artist that I found in London last summer.

Figure 5.41. Profile Switch. A blog post on my switch of profile pictures after the Week 6 project. I decided to do this because I wanted to respond to each participant's prompt. Through this process of working through their questions I became aware of a shift in my own role, into more of a co-participant than resource or teacher for them. Participants were asking me less and less technical questions, looking proportionately less at my own responses to the weekly project, and they seemed, in my own estimation, quite independent. Because of this perceived identity shift, I changed my metaphorical self-portrait to an image that represented myself as a photographer. Included here is the blog post that I wrote explaining my decision to change my profile picture.

WEEK 6 ANALYSIS

There were three threads that I interpreted from my analysis at the time, and from interviews. First was an excitement and pleasure, on the part of the student participants, in engaging with participants' ideas. Second was an excitement on the part of the teacher participants, but also a hesitation to consider doing this kind of inquiry in their classrooms. Third was the forming of a *network hub*, meaning that Opti's ideas were being responded to proportionately more than anyone else's.

The act of engaging directly and meaningfully with another participant's ideas was pleasurable, and stood in contrast to the types of art inquiry described by the student participants wherein the focus of inquiry would be around producing images that exhibited the use of an element or principle of design. Here, Mango Jello discusses why she enjoyed working on the Week 6 project.

> **Mr. John Charles:** What did you think about the week six project? Where there were two parts.
> **Mango Jello:** Oh yeah, I liked it. Because a lot of people had different ideas like that I would have never really thought about and it makes you kind of think more about… just like how you are going to do it and what you're going to take pictures of.
> **Mr. John Charles:** And is that different from how you usually work?
> **Mango Jello:** Well, before in photo class, to take pictures I would just usually take them to get it done. Because there is so much to do and there wasn't really like my pictures because we had to do the assignments and stuff. Like if we got a roll of film, they would be my pictures because we just had to do certain like techniques. But then some of the techniques I don't really like.

Mango Jello's description of her experience in art class is an example of what Olivia Gude (2004) described as her experiences of art curriculum in kindergarten to Grade 12 (K-12) settings.

> When visiting K-12 school art programs, I rarely see meaningful connections being made between these formal descriptors and understanding works of art or analyzing the quality of everyday design. I ponder the piles of exercises on line, shape, or color harmonies left behind by hundreds and hundreds of students each year. I wonder why what is still considered by many to be the appropriate organizing content for the foundations of 21st century art curriculum is but a shadow of what was modern, fresh, and inspirational 100 years ago. (p. 6)

Mango Jello found that, in contrast to her prior experience of art education, the opportunity to engage with her peers' ideas was meaningful. Recalling Sophie Lee's statement, the act of mashing up other participants' knowledge with your own was a way to produce meaning through art. Even though Mango Jello was responding to her peers' ideas and images, she felt that her resulting work was hers and not someone else's—it was something altogether new.

Opti also described the Week 6 project as something that he had enjoyed. For him, having the opportunity to choose starting points for artistic inquiry was far more desirable than the previous weekly projects that attempted to allow for a wide range of possibilities. Opti pointed out that no matter how open or inquiry-based the context sensitive constraints were, they had still come from one interpretive frame: mine.

> **Mr. John Charles:** What was your favorite project?
> **Opti:** Oh, I would say the one where you had to … I think it was week six. The one where you had to contribute a post and people would post upon it. I liked that one.
> **Mr. John Charles:** And why did you like doing that?
> **Opti:** I guess because there are so many to choose from, you're not limited, not to say the weekly projects are limiting, but it kind of allows more freedom. Yeah, it's kind of interesting to see the different posts for each one of these.

It is important to consider the perspectives of the teacher participants when it came to these kinds of curricula designs. Both of the teacher participants who responded to both parts of the Week 6 prompt, stormy and Lucy MaGee, had insights into the causal influences and possibilities for why the Week 6 project created a rich diversity of ideas and responses. stormy was impressed at the level of thinking represented in the ideas by the student participants, yet she was not surprised for a number of reasons. The first was that she understood the context in which these ideas arose. The fact we were engaging with big ideas around life, meaningfulness, engagement, sustainability, and happiness was bound to show up in their prompts, according to stormy. The second reason behind stormy's understanding of how such a thoughtful quality to the prompts arose was due to the type of participants who were thoughtful in their art making already.

> **Mr. John Charles:** And the week six project, what did you think about some of the ideas that some of the participants came up with?
> **stormy:** I was amazed by the ideas. I just thought they were so thoughtful and um, just really... well thoughtful is the first word that comes to mind. It is

like they put a lot of consideration into it. And also they weren't just thinking of something on a superficial level. There is way more to it then, you know?
Mr. John Charles: Why do you think that was? Why do you think that happen?
stormy: I think probably it was instigated by the initial concept of the whole… like where we were talking about 'happiness' and euphoria and sort of looking at the different levels of it. And I think that probably helped to get students looking at their photos in sort of a multilevel fashion. I think that is probably part of it. And I think we also had some exceptional students working on the assignments. So I think that was, so students who are already very talented and who are already probably are very thoughtful in their art making.
Mr. John Charles: Would you say that you get to see that kind of thoughtfulness from your students often?
stormy: Those same ones will always sort of rise to the occasion. You know when I am thinking of an assignment, I always know that I don't worry about those kids, because no matter what it is, they will take it to whatever level they can. And it's always the kids that are kind of right in the middle that I kind of worry about, because you want something to engage sort of the rest of the class. Cause the high level kids, "draw an apple" and they are still just like. "oh, how am I going to draw that apple? How am I going to make my apple better than everyone else's? How can I make it stand out, unique… I think that is the kind of students that are making these responses.

Lucy MaGee, like stormy, was very impressed and surprised at the level of thinking represented in the student participant responses. When asked whether she had ever tried something like this in her own teaching, Lucy MaGee expressed that it had not been an easy experience. The difficulty, according to Lucy MaGee, was in the open discussion, of having students share their ideas publicly, in real time. When one feasible idea was put forward, the class, in her words, "clammed up."

Mr. John Charles: What did you think about the type of responses that were put up by the students?
Lucy MaGee: I thought that they were great ideas actually, it, really matured ideas. So again I wasn't sure who were students and who weren't from that. Because some of the ideas I was surprised that maybe a student would have come up with that.
Mr. John Charles: Do you think you'd ever try that with one of your classes?
Lucy MaGee: I have tried it before, where they kind of … I asked them to come up with the project. The classes we have like an open discussion about what we are going to do next.
Mr. John Charles: Can you talk more about that?
Lucy MaGee: Ah, well… what I have had happen as soon as the first idea is thrown out there nobody wants to give any other suggestion. I am not sure if

> they don't want to step on someone else's idea or they are intimidated to give an idea that's different. But as soon as there's one idea out there they kind of all clam up. And so with practice that would get better I am sure. I don't know why that happens.

One of the possible differences between what was happening on our social network and what had happened in her own experience teaching was the ability for students to post without the same kinds of embodied emotions associated with speaking up in a class. One of the advantages to using a social network is that embodied emotional feedback is not readily accessible. The student participants in this study were very aware of, and sensitive to, the social structures that they navigate daily. As will be shown in Chapter 7, the perception of what one's own position is in a social structure affects the level of participation. The social network may offer a space where those real-time classroom social structures can be shifted. The difference might possibly be in the qualities of relations on online settings. This idea is explored more in Chapter 7.

For whatever reason, Opti's ideas were a significant hub in terms of the attention and associations they were getting in Weeks 5 and 6. Here, the metaphor of hubs draws from understandings of decentralized, scale-free, networks. In decentralized networks, hubs *gain links and associations* in proportionately greater numbers than do other nodes in the network (Barabási & Albert, 1999; Barabási, 2003; Watts, 2003). I was interpreting an orientation in inquiry around a few clusters of ideas that centered around the ideas of one participant.

In complex dynamic systems, causality is not an unidirectional arrow, and the overlapping and dynamic architecture of these systems supports and unfolds in similar ways. Clay Shirky (2003) writes about how, with the proliferation of any communicative collective space, such as the Weblogs (blogs) in the early 2000s, there was a widely touted perception that this was a "democratic" and equal space where anyone's voice could be heard by anyone else. While this was, in principle, true in the sense that anyone could set up a blog and that anyone with an Internet connection and the blog's address could read it, it was not how the Web actually unfolded (Barabási, 2003). Instead, the Web is really distributed as unequally as are most distributions of unregulated, dynamic scale-free networks. When plotted, it correlates along a power-law distribution. Barabási's (2003) research showed that links beget links and views beget views according to a dynamic of preferential attachment. In the beginning of blogs, the distribution of readers was spread fairly equally. However, as the blogosphere grew, as

certain influential readers and blogs began linking with one another, and as recommendations and reviews began to orient readers towards certain Weblogs, the dynamic of preferential attachment kicked in. The result: there are a few heavily read blogs and a disproportionate amount of blogs that are read by far fewer readers. This is where the expression “the rich get richer” rings true.

What if, as I was interpreting in this study, this is what happens in classrooms? I went into the following week’s project with a heightened sense of the attention that Opti was garnering. I did not see this as something detrimental, because his ideas around sustainability and the kinds of inquiry he was inspiring were positive; however, I was sensing that there were many other images and ideas, also of significant merit, that were not being attended to.

WEEK 7

In Week 7, the constraint was designed to redistribute attention. It asked participants to go back into the images produced, and this time to engage with them by organizing them. At this point in the study there were almost 400 images posted to the social network site. Week 7 asked participants to act as a curator—to select a related body of images around a theme of their choosing. The thinking here was to ask them to reexamine the collective system of knowledge with a different interpretive frame. Here is how the Week 7 project was posted on the site:

> This week's project is a little different in that you won't be creating work, you'll be organizing it by creating an album. Curators are the folks who choose, organize, and put together art exhibitions in places like the Vancouver Art Gallery. For this week you're going to be a curator where you will organize a thematic exhibition of other participants' art works. A thematic exhibition is a group of artworks made by different artists that explores an idea, emotion, or style. You'll organize this exhibition into an album on our site.
>
> 1) You can start with your favorite images made by someone else (is there a common theme, story, emotion, or style?). Or, you can come up with your own theme, emotion, or style and search for work that uses your selected theme. Don't use your own work, you're the curator- meaning that your creative work is to select and organize artworks!
>
> 2) An easy way to organize your search is to tag the images that you want to include with a keyword that fits your theme. For example, if you are doing an album about Micro Worlds, you might want to tag images with the label

microworlds. That tag can be used as a keyword search when you go to assemble your album of images.

3) Build your album. The instructions on the Make an Album page are pretty straightforward. Let me know if you need help.

4) Make sure you title the album. Think of a creative title which describes the ideas your selections are exploring. Here are the last five exhibition titles that curators came up with at the Vancouver Art Gallery.

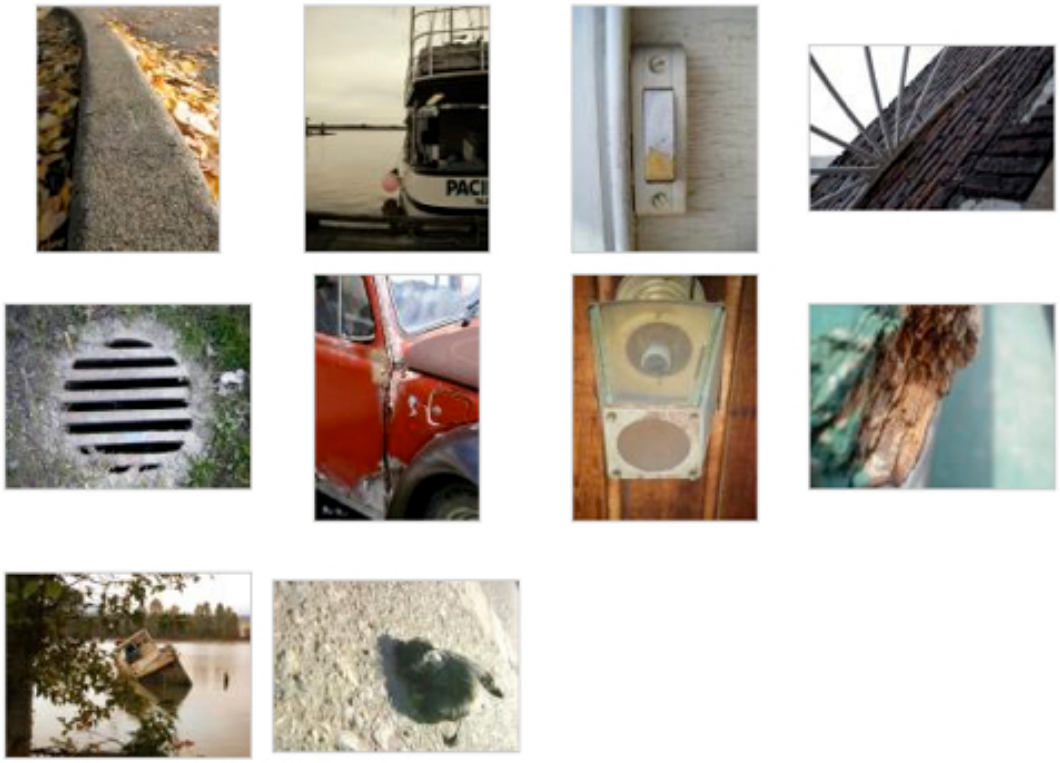
KRAZY! The Delirious World of Anime + Comics + Video Games + Art
Canadian Women Modernists: The Dialogue with Emily Carr
Truth Beauty: Pictorialism and the Photograph as Art, 1845-1945
The Tree: From the Sublime to the Social
Acting the Part: Photography as Theatre
Classified Materials: Accumulations, Archives, Artists

5) Write a short description introducing the album and what the theme of the selection is about. Here's a description from the latest show KRAZY! at the VAG now:

"Krazy! The Delirious World Of Anime + Comics + Video Games + Art is the first exhibition of its kind, a groundbreaking project that offers unique and dynamic insight into the world of comics,animated cartoons, anime, manga, graphic novels, computer/video games and visual art. Spanning a century of artmaking, the works in this exhibition reveal an extraordinary history of production, one that is poised to redefine the scope of visual culture in the 21st century."

6) Make sure you consider the sequence/ order the images go, think of them like pages from a book.

Participants who responded to the Week 7 prompt, for the most part, expressed that they were able to go back into the collection of images posted to reconsider them through an interpretive frame of their choosing. Gaelan Knoll described this as the easiest project to this point, due to his(her) already articulated attraction to images that showed the theme of decay (Figure 5.42).



Curator: Gaelan Knoll
Title: Decay
Aging objects have a certain, unforgettable look to them. Instead of looking clean and tidy, they have personality and beautiful textures. This is a collection of photos that shows the decay in the world, from rust to mould, to rotting and death. Even though we all like having something new and shiny, I don't think we'd feel quite at home without these decayed, old, and broken things.
Posted: 6/3/2008 7:38 PM

FIGURE 5.42. Decay.

Gaelan Knoll also expressed that there were so many images posted at once throughout the study that it was difficult to actually view all of them carefully. He(she) was able to identify what images were drawing his(her) attention and to organize a selection of work that represented the theme of decay.

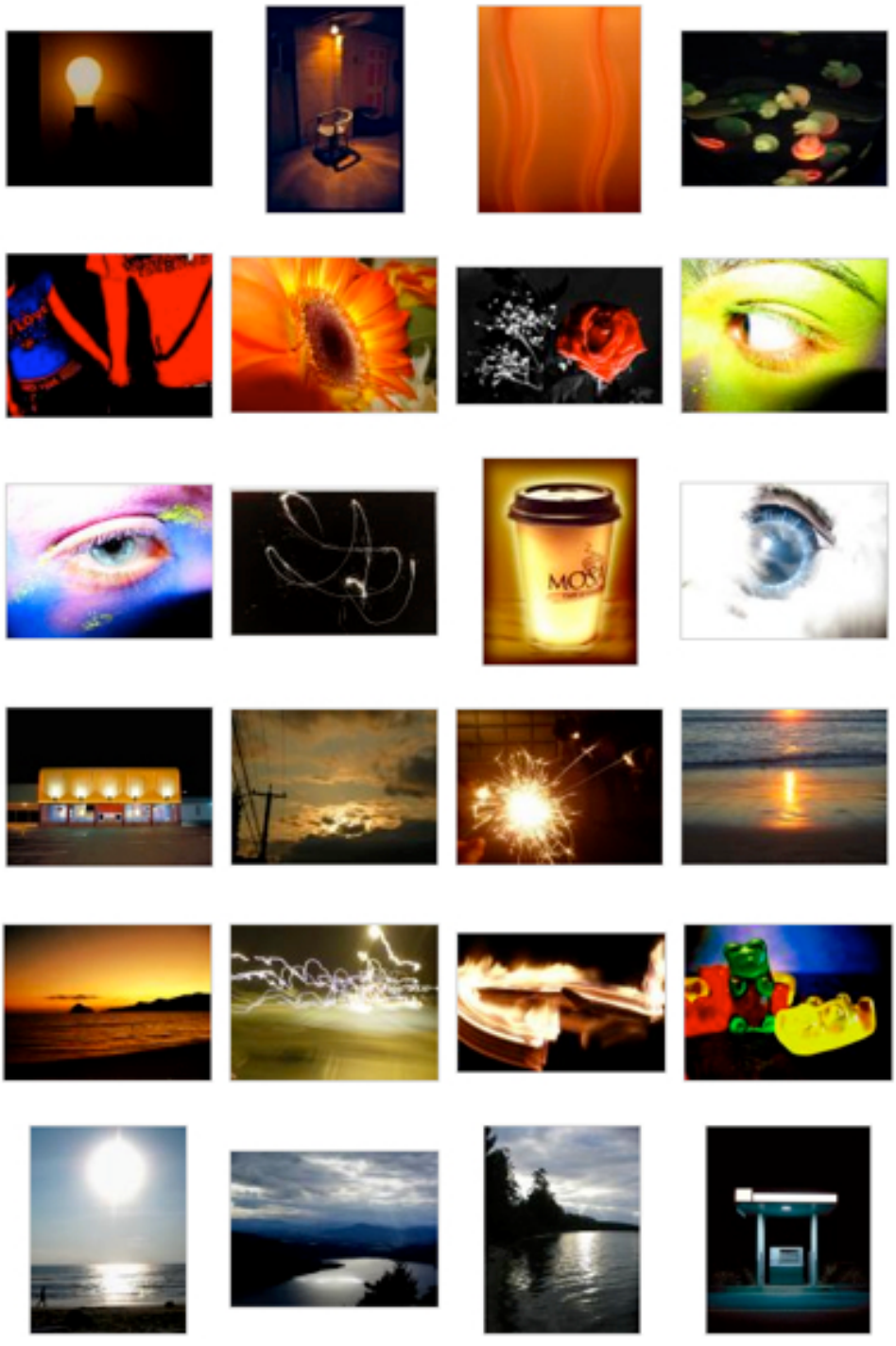
> **Mr. John Charles:** The decay album. What did you think of that?
> **Gaelan Knoll:** I like that one because I got to see so many pictures. People posted so many at once so you couldn't possibly go through all of them. So I got to look at pictures. Lots of them I liked. I have been attracted to these pictures especially with the decaying, I don't know why. I have something for the decaying and the colors and it was nice looking at pictures. Yeah, it was the easiest one to do. I didn't have to go out and think too hard. Just look at them and put them together. I thought it was easier.

Only one image in his(her) album, that of the red rusting car, was posted in response to any of the weekly constraints. Even though this curriculum had involved four weeks of exploring ideas of happiness through artistic inquiry, there was a diverse range of interpretive possibilities present in the dynamic knowledge system. In complexity thinking this is understood as diversity (Davis & Sumara, 2006). Diversity here is described as the range of interpretive possibilities that can be engaged with and enacted. The participants were never discouraged from posting images and ideas that fell outside of the thematic premise of the weekly constraints. Our social network space acted much like Wilson's (2008a) third-space pedagogy, in that the productions made by participants outside of schooling and formal curriculum mingled with the ideas of the designed curriculum.

Haine Walker also described an experience similar to that of Gaelan Knoll in curating an album of artworks from our collection of images. He(she) also described how there were images that he(she) was going to miss, and that this was an opportunity to go back into the collection of images to find new ones and also to revisit images that he(she) had an affinity towards. Five out of the 24 images in Haine Walker's album were responses to the weekly constraints.

> **Mr. John Charles:** Week seven, you curated... [looking for the image, pointing it out on the computer] What did you think about this assignment?
> **Haine Walker:** I thought it was pretty cool, then I would have to look through a gallery and look at all the photos that I missed. Maybe someone uploaded a lot while I wasn't online. So some of the ones were pushed back and I only saw the front pages one. So it was a good way for me to review for myself all of the images that had been uploaded and look at some old ones that I really liked.
> **Mr. John Charles:** Did you find any that you missed?
> **Haine Walker:** I missed the one about… this one [pointing to one of Kezia's images on the computer] of them holding hands.
> **Mr. John Charles:** And then you went ahead and made a comment later.
> **Haine Walker:** Yeah. It was also a good angle. You get the picture but you don't see their faces.
> **Mr. John Charles:** Can you talk a little bit about your thinking process in organizing this album?
> **Haine Walker:** I really like the chair one. This one that has the chair [referring to the screen]. I like how it was dark but it had an orange light coming through focusing on the main thing/image. I was like maybe I would go with a warm glow. Because I thought of some other images that were somewhat similar, like the fire one like hell in your hands or something, I can't remember. So I

did it that way. But then I saw some that didn't have an orange glow but were still glowing like the eye one. And then I liked those so I put them all in.

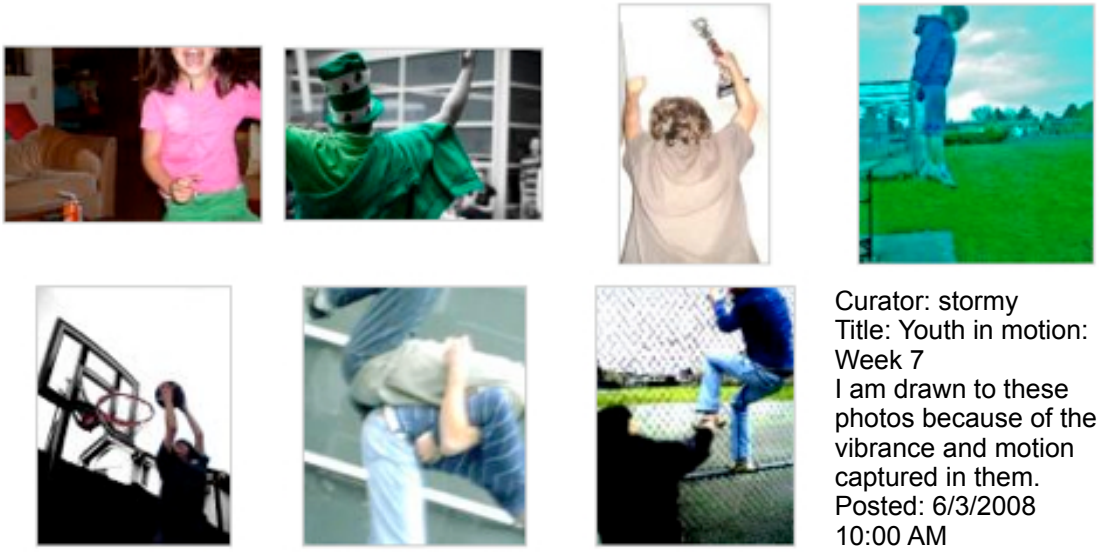


Curator: Haine Walker
Title: Week 7: A Warm Glow
Description: Okay, so for week seven we had to make an album. For me, I really liked alot of photo's and all the different styles, but this time, I decided to make an album on the photo's that had a warm glow. Most of them are dark with an orangey glow, and some are just glowy. Sorry for being late with this project.
Posted: 6/2/2008 12:00 PM

FIGURE 5.43. A Warm Glow.

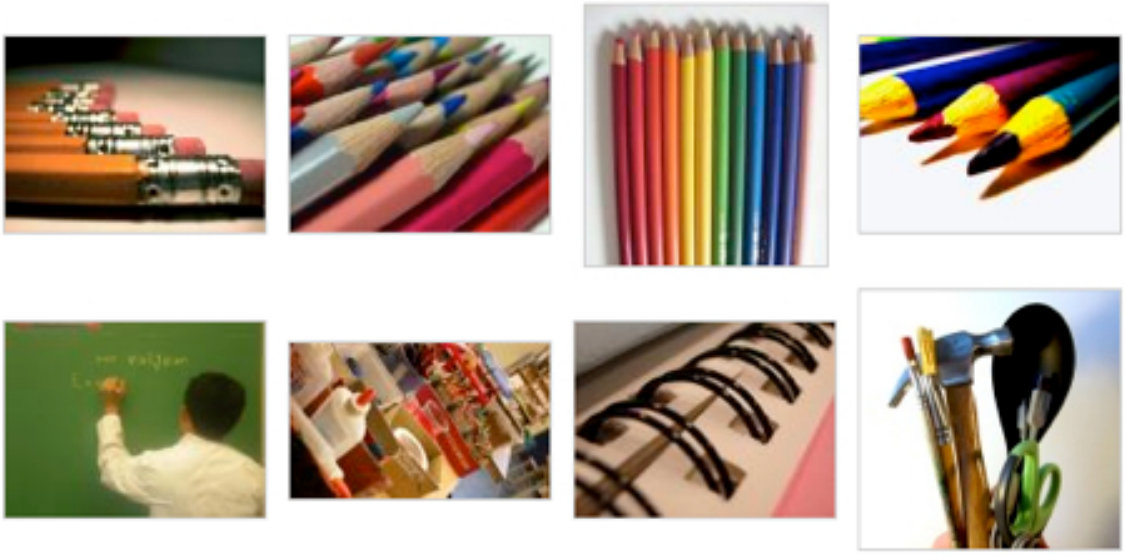
stormy expressed in her interview that the Week 7 constraint was very difficult. She also described how the medium of photography enables this kind of activity, meaning that the speed of production enabled by digital photography can result in tremendous amounts of art being produced in a short amount of time. For her, the question then becomes, *What do we do with all of this art?* stormy also described how this constraint enables students to evaluate and make judgments in a different way. In digital literacy, *judgment* has been defined as "the ability to evaluate the reliability and credibility of different information sources" (Jenkins et al., 2007, p. 4). Here stormy articulated what judgment online could be in art education, as a way of connecting ideas.

> **Mr. John Charles:** What do you think of the week seven project?
> **stormy:** I think it's good. It gets kids to look at photos in a different way. They're evaluating them in a different way and making judgments and at sort of a whole different level of thinking. Yeah, I think it's very useful. Especially if you are doing this with photography. I mean where you can generate that amount of work.
> **Mr. John Charles:** Can you describe a little bit about that kind of thinking, that judgment that is involved? That is different than everyday kind of thinking.
> **stormy:** Well I think when you are kind of flipping through and saying "oh I like that, I like that." And then you can start to break things down. Like, "I like the composition in this one. And I like the lighting in that one. And the color in that one." But when you have to curate the album you have to have a commonality… there's a commonality among the work. Like the more successful ones, the subject matter may vary. But it's the commonality is there. And I think it allows the students to look at a photo and make connections with other photos in a different way. It just engages them. Rather than connecting with the photo in a personal way. It might be more just in a different kind of connection. Making connections between other people and other work and not so much… It's almost taking a personal step back almost. I guess. Cause you can say, "yeah I like all of these pictures" or you can make an album of pictures that I like but… see when I made mine I actually included a couple that I wasn't sure that I liked very much, but I put them in there, because they sort of fit.



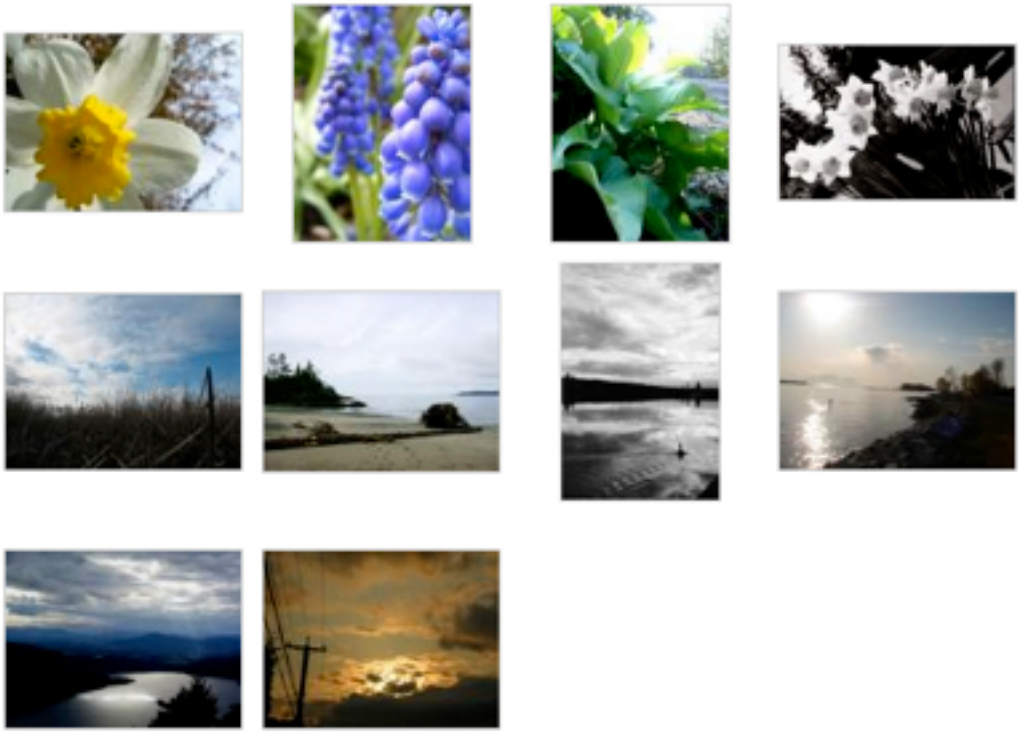
Curator: stormy
Title: Youth in motion: Week 7
I am drawn to these photos because of the vibrance and motion captured in them.
Posted: 6/3/2008 10:00 AM

FIGURE 5.44. Youth In Motion.



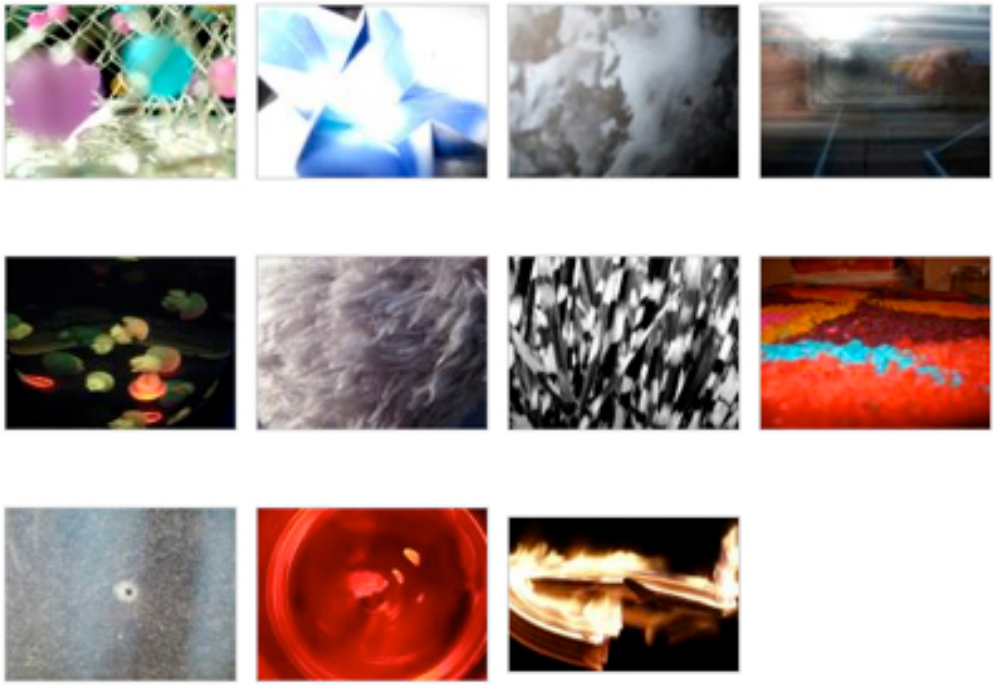
Curator: Opti
Title: Week 7: Art Supplies
Art Art Art! XD I saw a picture of some really colorful pencil crayons, and then another, and then another... o.O So i made this theme about art supplies!
Posted: 6/7/2008 11:29 AM

FIGURE 5.45. Art Supplies.



Curator: Mango Jello
Title: Take a Walk Through Nature~
While I was looking through the photos I noticed a lot of pictures of nature and they really captured my attention. I decided to put them together in an album because I thought they would complement each other well. Looking at these photos is like taking a walk outdoors in the fresh air.
6/4/2008 8:24 PM

FIGURE 5.46. Take A Walk Through Nature.



Curator: Mr. John Charles
Title: Other Worlds
This series of images were selected because they represent "Other Worlds." The title "other worlds" is used to describe images that, whether created by accident or deliberately, are of actual, everyday objects, but look as if they could be anything from molecules to galaxies
Posted: 6/3/2008 7:38 PM

FIGURE 5.47. Other Worlds.

WEEK 7 ANALYSIS

There were a number of threads that emerged from this iteration. The first was the articulation of new interpretive possibilities in the collective knowledge system. The second was an articulation of judgment by stormy. The third was how this constraint enabled all of the participants who completed the project to act as a *consciousness of the collective.* The concern that there could be a convergence towards one or two clusters of ideas was addressed by this constraint. New themes emerged based on the curation of albums by different participants. For example, some of the themes organized were: teens and activity, by stormy (Figure 5.44); nature, environment, and place, by Mango Jello (Figure 5.46); color, by Haine Walker (Figure 5.43); art materials, by Jean Valjean (Figure 5.45); and other worlds through macro photography, by me (Figure 5.47).

The kinds of judgments and evaluations, as articulated by stormy, point to possibilities for art education in and through new and social media. Among the collaborative features of DBR are the opportunities for participants to make important articulations of knowledge about the experience of certain phenomena. Sometimes, the participants are better able to describe the theories framing a phenomenon than is the researcher (Latour, 2005). What stormy suggested is that organizing and evaluating art in this way goes beyond merely making personal judgments about what one likes or dislikes. In this way, themes are formed and articulated and choices are made, and even though there might be an image that is not appealing, its inclusion becomes important to the integrity of the interpretation. It is a way of connecting ideas.

What was also developed through the use of this constraint was an expanded definition of who could be a *consciousness of the collective.* Consciousness, as defined in Chapter 3, is a commenter and organizer (Donald, 2001; Nøretranders, 1998). Responding to this week's prompt, participants were able to go back into the collective knowing system and organize, through their own interpretive frames, new possibilities that had not been articulated previously. This underscores the importance of the understanding that complex systems have histories that guide future action. Constraints such as these acknowledge and utilize the history of ideas present in a collective in order to generate new interpretive possibilities. Also important to this understanding is how new and social media enabled these kinds of activities. stormy pointed out that digital photography, which can be used to rapidly generate a rich history of ideas, makes this possible. The social network site also offered a way to asynchronously record and disseminate representation of ideas.

Week 7 concluded the second phase of this curriculum. The third phase consisted of three weeks of inquiry. Building from Week 7, it also offered an opportunity to enact an interpretive frame through artistic inquiry.

WEEK 8

The Week 8 project was posted with the Week 7 project, two weeks prior to the end of the curricular project. Also, the Week 8 project was posted two weeks before the site was officially closed, which gave participants three weeks to develop an individual direction for inquiry. The post, which accompanied the Week 7 post to give participants an opportunity to begin thinking about the project, follows:

> For our final project select one of your favorite images posted and create a series of images that continue to explore the same or similar idea (they can, but don't need to be from any of the weekly projects). You can do as many images as you like (I would suggest a minimum of three to five). Take a look at stormy's *A week in colour* album where they took their week 3 project and extended it over a series of five images.

One of the difficulties at this point in the study was that it coincided with the end of the school year. This left participants with little time to contribute as much as they did at the beginning of the curriculum. By the end of May, their classes were beginning to prepare for final exams and projects that required much of their free time. Many of the participants sent personal messages to me expressing how much they were wanting to work on the Week 8 project, but were unable to due to school work. As participation in this study was completely voluntary, I could only offer encouragement and show my appreciation for their level of participation up to this point. Only four of the participants posted responses to the Week 8 project: stormy, Mango Jello, Gaelan Knoll, and me.

In addition to deriving this iteration from the Week 7 project, this week's constraint also drew from stormy's independent inquiry begun in Week 3. Her album, "A Week in Colour" (Figure 5.48) was posted right before the Week 8 project was posted with the Week 7. It was incorporated into the prompt as a reference for participants to understand how artists like stormy inquired through art over time and over multiple artworks.

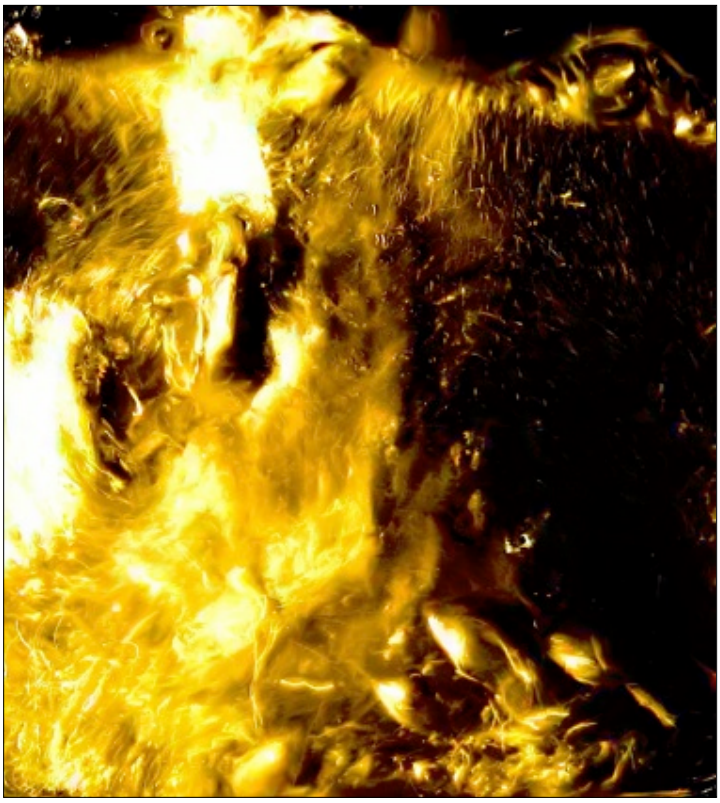
Artist: stormy
Title: A week in colour
I interviewed a teacher at the school who wears a different colour shirt and matching socks for everyday of the week. It relates to the birth of his daughter. He wore purple on the day she was born, and decided that he would wear purple on every Wednesday henceforth.
5/23/2008 5:31 PM

FIGURE 5.48. A Week In Colour.

Mango Jello chose to revisit her response to the Week 6 prompt. Her image of a water faucet was in response to Opti's prompt that asked: *What do we take for granted?* In an interview with Mango Jello about her series of images, she offered a number of reasons why this was her most favorite work of the whole curriculum. She described the challenge of trying to take interesting images of a subject such as water, as engaging. While Mango Jello was working on the series, she would post images in batches of two or three, receive feedback, take more photographs incorporating some of the feedback, and then repost. It was a recursively elaborative process of inquiring with and through a collective of artists.

> **Mr. John Charles:** Speaking of the projects which one was your favorite? Of all of them?
> **Mango Jello:** The last one.
> **Mr. John Charles:** The last one? Let's take a look at that one... the water ones [referring to the computer]. Why did you like doing this project the most? The independent one?
> **Mango Jello:** I just like...the first two are from the six [week six project] then I just kind of like extended it. It took me a really long time to get an idea cause it is hard to take pictures of water that are interesting. So it kind of made me think and everything. And I like the way it turned out.

FIGURE 5.49. Untitled Series. Mango Jello did not organize her images into an album.



Artist: Mango Jello
Title: untitled
Posted: 5/26/2008 6:40 PM
Views: 19

Comment by Mr. John Charles on June 16, 2008 at 6:17pm
WOW...

... so how do you like it cropped?

Comment by Mango Jello on June 16, 2008 at 6:19pm
haha i love it like this :)

Comment by stormy on June 18, 2008 at 1:23pm
super awesomely awesome!

Comment by Haine Walker on June 23, 2008 at 7:28pm
Whoa! This is so cool!
This is water?! That's awesome! It looks like fire! O_O What'd you do to it?!

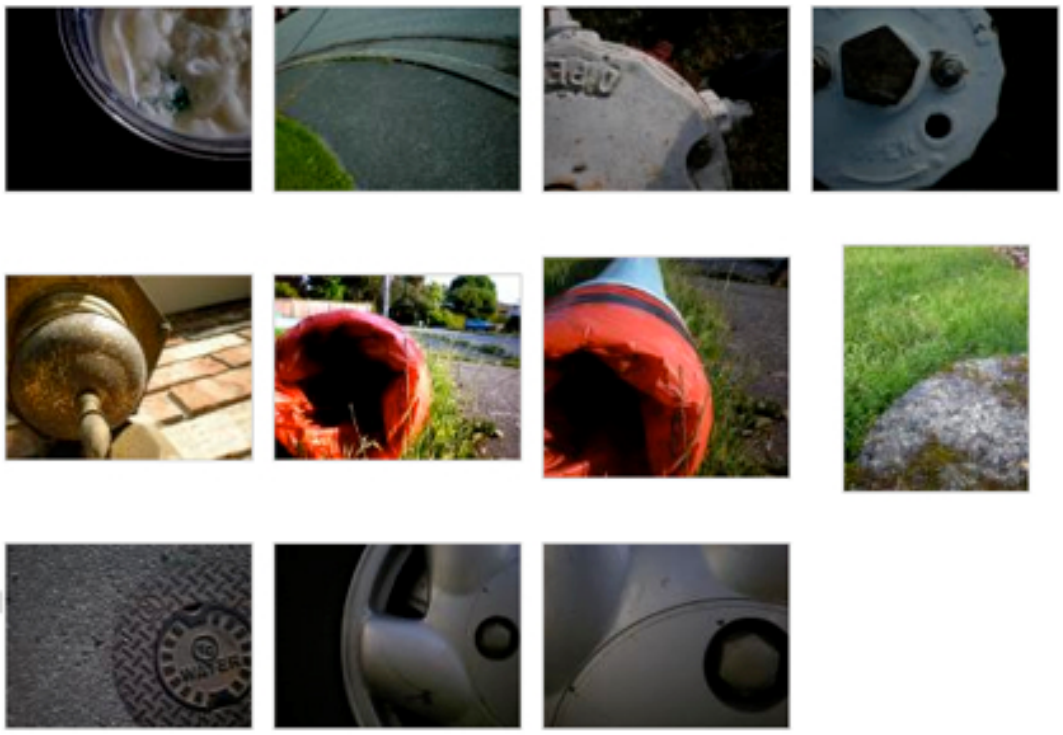
Comment by Mango Jello on June 23, 2008 at 7:31pm
haha yepp it's water

i used one of those things that suck up the water and then when you squeeze it the water comes out....

hmm hahhaha
and then it made this weird bubbles and stuff and then i changed the contrast and brightness of the pic

FIGURE 5.50. Untitled.

Gaelan Knoll took a different approach than Mango Jello. Rather than select one of his (her) own artworks, he(she) revisited the Week 5 project premise and chose the visual form of the circle, referencing Opti's Week 4 project response. Gaelan Knoll's inquiry led him(her) through his(her) local environment. In Gaelan Knoll's description accompanying the album of images (Figure 5.51), he(she) states that he(she) will post specific descriptions for each image later, but needs to "studystudystudystudystudystudy." This captured the sentiment of almost all the participants in final interviews: desiring to work through the Week 8 project, but being unable to do so due to final exams and projects.



Artist: Gaelan Knoll
Title: Circles of Life
My week eight project, I decided to create photos based on Opti's week four project—
I'll write descriptions later, I have to go studystudystudystudystudystudy!!
6/8/2008 9:02 PM

FIGURE 5.51. Circles Of Life.

WEEK 8 ANALYSIS

Even though only three participants besides myself contributed to the final inquiry project, there were some significant insights that were interpreted. The act of elaborating on prior ideas offered a generative space to work from for Mango Jello, Gaelan Knoll, and stormy. Complex systems have histories and as such, draw from them to adapt and anticipate (Cilliers, 1998). As artists we work from embodied histories, both individually and collectively. Our histories of artistic inquiry come from somewhere and some place. The design of Week 8's constraint drew from these understandings. This is something that I have understood as an art educator for some time, though the ways in which Mango Jello and Gaelan Knolls' inquiry could be referenced and traced—that is, the ability to explicitly create idea associations with other ideas generated in a collective and then to further elaborate them into new interpretive possibilities—was something that was unfamiliar to my pedagogy. Both Mango Jello and Gaelan Knoll expressed that they did not feel like they were copying; they were only using others' ideas as inspiration. Wondering if the teacher participants were connecting their own histories of inquiry into the collective knowing system of their classrooms, I asked if she ever showed her own work as an artist, as a series, to her students.

> **Mr. John Charles:** Do you ever show your students your work as series?
> **stormy:** Ah, not really. I gave a slide show last semester to my students. And well, yeah I did show them some photos that I had taken when I go out on trips. Like when I go into nature and I am documenting what I am seeing and ...
> **Mr. John Charles:** And that informs your painting…
> **stormy:** Exactly, then I show them my artwork and how the two relate to each other. Like I am looking for pattern and repetition in nature then that translates into something completely different in the work but it's still connected. So, we talked about that and I have shown some students. Like I show them my portfolio and I show them how it's all building up… one image is building up on another and it's just … not a finite process. It's always changing and developing.

As a practicing artist, stormy embodies this process of a recursively elaborative artistic inquiry, wherein one work leads into another and into another, developing and evolving.

> **Mr. John Charles:** That's great.
> **stormy:** Which I have to keep reminding myself of too.
> **Mr. John Charles:** What do you mean?
> **stormy:** Well it's just… you get into the studio and sometimes you just want to do what you've already done. But at the same time, I don't, some people

are fine with that, I can't. It's a struggle actually, just sort of getting in there and thinking, I have to come up with something new. But how, I don't know what to do that's new. And how am I going to push this and change this. And what if someone has done this before and what if, someone doesn't like this new thing, cause this old way people like it. It's sort of that whole conversation.
Mr. John Charles: Do you think your students struggle with those questions?
stormy: No I don't think so. Not yet. One day. Some of them will.
Mr. John Charles: Do you ever share those… those struggles that you have with them?
stormy: I don't think so, not those ones... maybe a couple of kids, we'll have conversations about this. But not to the class. It just not sort of within the scope really. It's just kind of beyond what the kids are really interested in, I think.

What stormy, in my interpretation, was describing is a sense that perhaps these kinds of inquiry are not appropriate for some students. However, it is clear for students like Mango Jello that these types of inquiry are difficult and yet can be supported. Throughout the projects of Weeks 5 through 8, Opti, Sophie Lee, Gaelan Knoll, and Mango Jello all described the advantages of artistic inquiry that drew from the knowledge of the collective as a starting point for inquiry. They were able to describe how engaging it was to have the opportunity to elaborate and explore someone else's ideas further, and as a result, to make it their own. What the analysis from Weeks 5 through 8 suggest is that perhaps the art teacher does not have to be fully responsible for supporting these kinds of inquiry. What if the knowledge that already exists in a collective is the support and starting point for new forms, ideas, and artistic inquiry?

REVIEW

The purpose of this chapter was to examine the enacted inquiry-based art curricula and pedagogy, which drew from contemporary new media art and complexity thinking. Through descriptions of the iterative process of DBR, which includes participant artworks, dialogues, interviews, and my analysis through each step of this design, I have described, analyzed, and interpreted features of this curriculum. For a re-presentation of DBR, I have woven a dialogue of evolving conjectures and the curricular design. I now summarize those conjectures as a way to articulate insights into learning and teaching art through this design.

The first phase of the curricular design inquired into the reshaping of participants' relations and encounters with their worlds. It utilized context-sensitive constraints, enacted in a number of ways. The first was through the use of the film *Euphoria*. Its use of sometimes ambiguous yet provocative visual metaphors provided a place to question ideas like happiness with a dialogic approach. In Week 1 what emerged was an unexpected anxiety, on my part, about teaching and researching art online. The kinds and qualities of embodied interactions that I was used to were absent, and I found this disorienting. Related to this unease about not having daily encounters with participants was my growing awareness that implementing constraints that ask for a new way of relating to the world is not easy, and takes time. Also unanticipated by me was the emergence and development of themes such as sustainability.

In Week 2, both stormy and I were able to begin acting as a consciousness of the collective, orienting, organizing, and pointing towards associations that were both represented on the social network and not. A history of ideas–a dynamic knowledge system–was emerging in which stormy and I were able to respond. I have not included Lucy MaGee and Rick O'Shay in this conceptualization because I have interpreted their actions as responding more to the constraints than to the emerging knowledge generated from the participants. It was not often that either posted a comment in response to anyone else's images. Mary Lou's participation was limited to only two images posted. Also in Week 2, there were tensions between the positions that Rick O'Shay, stormy, and myself were taking in relation to Galean Knoll's understandings around happiness. This prompted a turn in the constraints to inquiry into relationships that were unique to each participant.

In Week 3, the quality of constraint posed new challenges and reshaped relations between participants and their local relationships. Both Gaelan Knoll and stormy described moments when their encounters with people in their lives were reshaped as they saw them as engaging with something meaningful. By Week 4, participation had waned. What came out of the week, though, was an opportunity for Lucy MaGee and I to engage in conversations about the process of artistic inquiry in relation to her Week 4 response. What was noticed in Week 4 were patterns of similarities in the student participants' artworks, as seen in the images of Jean Valjean and Haine Walkers. This prompted the shift to the second phase.

The curriculum's second phase, which continued to build on the first phase, was focused on generating a self-organizing or autopoietic system of artistic inquiry. Complex systems have histories that shape future action. It was this theorization that formed the Week 5 constraint. Participants described the process as a positive way of inquiring through art. Also, it emerged that participants, in a sense, carried with them the images from the social network in their memories. A number of participants described encounters with a phenomenon that evoked recognition of an image posted to the social network. Here the relations between participants' embodied interpretive frames were being reshaped by the collective of knowledge as represented in the posted artworks. During this week it also became clear that certain participants were receiving significantly more responses to their art than were the rest of the participants.

In Week 6, participants were asked to post questions or prompts for the rest of us to respond to. I interpreted from participants' comments that they found this freeing, in that it offered more ways in which they could inquire through art. The teacher participants were impressed by the quality of questions and prompts, yet hesitant to see its potential applicability in their classrooms. Also in this week, Opti's ideas continued to draw attention and response. Again, he received the most responses to his ideas than did any of the participants. To respond to this, the following week's constraint served to prompt participants to return to the collective knowledge system for new interpretive possibilities.

Week 7 asked participants to curate a thematic album of artworks. The theme could be anything they wanted; the only constraint was it had to express their chosen theme. From this constraint emerged new interpretive possibilities that had not yet been articulated. It also became a place for stormy to theorize new articulations of judging and evaluating art online and of its educative potential. The question was also raised of who could be a consciousness of the collective. If consciousness is understood as a commentator and organizer, then those who participated in the Week 7 prompt were acting as this consciousness.

The third phase of the curriculum asked participants to engage in an independent inquiry. In the context of how the Week 8 prompt was enacted, the word *independent* was kind of a misnomer. On further reflection, *extended* perhaps would have been more appropriate—so as to avoid any expectation that the constraint would produce an original, totally self-directed artistic inquiry. The participants described this prompt

positively as not in having to generate an original idea, but in elaborating from ideas already present in the collective.

SUMMARY

The overall purpose of this curriculum and pedagogy comes in response to the argument of Carpenter and Taylor (2003) that new technologies alone are not enough in art education. There is a need for curricula and pedagogies that are about the exploration and manipulation of ideas. To do this, the curricular design and enactment of pedagogy drew from contemporary new media art and complexity thinking. Its goals were to design a curriculum, enacted through new and social media, which would reshape the ways in which knowing and learning bodies engage with each other and with the more-than-human world. The artworks described in Chapter 2 create what was characterized by Nicolas Bourriaud (2006) as "free spaces and periods of time whose rhythms are not the same as those that organize everyday life, and they encourage an inter-human intercourse which is different to the 'zones of communication' that are forced upon us" (p. 161).

The art curriculum and pedagogy was designed as such a place: one of inquiry and exploration to construe embodied interpretive possibilities in relation to collective ones. It existed between schooling and not schooling (Wilson, 2008a, 2008b), occupying a transitional space which both referenced the familiar and evoked a new experiences. A new media art curriculum and pedagogy, as enacted in this study, was a resetting and reshaping of relations and interpretive possibilities through inquiry with and through new and social media. The curriculum in this study offered a space in which to inquire into relations with ideas and the world through art. It was a space for inquiry, through art which was performed, created, and enacted collectively.

Context-sensitive constraints in the form of prompts asked for a reconsideration of relations; this shifted everyday engagement in some of the participants' experiences. The Week 5 through 8 prompts also formed context-sensitive constraints that created interrelationships between participants' artistic inquiry and ideas.

This curriculum design and enactment of pedagogy also sought to respond to Robert Sweeny's call (2008) for structures of art curriculum that draw from complexity thinking. In Chapter 3, I presented characteristics of complex systems that would guide the design

of this curriculum. Specifically *interaction, interconnection,* and *histories of complex systems* were instrumental in the design of the context-sensitive constraints.

What insights into learning and teaching art can be articulated from the design of this study? It is arguable that, the act of doing this is a cleaving of context from the curricular approaches theorized, designed, and enacted, because they were in many ways contingent on new and social media. It is with a measure of caution, then, that I propose a series of conjectures about the design of this curriculum without considering new and social media.

Context-sensitive constraints enable new interpretive possibilities for artistic inquiry in art education. What they do is occasion a reshaping of existing interpretive framing of a landscape of possibilities. This is contingent on the referencing of prior possibilities, or embodied histories. What can be added through the iterative analysis and interpretation of this study is that constraints exist at many different scales and forms, not just in questions or prompts. Such constraints can reside in encounters with media or in a system of knowledge that prompts a new way of relating to an everyday experience. Context-sensitive constraints take time; they are inefficient and nonlinear. Where context-sensitive constraints reference embodied histories and local knowledge, there opens the possibility for divergent ideas to emerge. Context-sensitive constraints also enable interdependence—a necessity for complex emergence.

Autopoiesis, or self-organization, occurs when the interactions of individual agents become interdependent and bounded. What emerges are qualities that are not available or irreducible to any one individual. The context-sensitive constraints in Weeks 5 through 8 further enabled interdependence by prompting participants to reference the history of ideas represented. A curriculum that enables a self-organized collective of artistic inquirers should reference its shared history as sources for future elaborative inquiry. At the beginning of the curriculum, the constraints referenced the local knowledge and embodied histories of the individuals because there was no shared history in our social network. However, as that emerged, it could become a source for a rich diversity of directions for artistic inquiry.

Those who comment and organize emergent ideas may be thought of as consciousness of the collective, pointing towards new interpretive features in a landscape of possibilities. This study suggests that this role, previously theorized as one that could

only (or mainly) be embodied by the teacher, is actually fluid and can be shared across many identities—by teachers and students alike.

This curriculum and pedagogy was enacted in a context of new and social media. Many qualities described, analyzed, and interpreted here were contingent on the participants and context of this study. In the next two chapters, I examine the questions of who and what is considered a *knower* and *learner* in a social network space and what role is played by identity performance and construction in participation and learning online.

CHAPTER: 6 LEARNING THROUGH NEW AND SOCIAL MEDIA

This chapter re-presents an analysis and interpretation of knowing, learning, and teaching art through new and social media. Gaining a better understanding of how new and social media enable learning and teaching of art is part of the purpose of this dissertation. In this chapter, I interpret the experiences of learning and teaching through the context of the enacted curricular design. Through interviews, I explore participants' experiences and interpretations of learning and teaching art through new and social media. One of the features of DBR is to not only design and enact educational designs, but also to contribute to theories of learning. This chapter aims to articulate insights into learning art through new and social media. Through analysis and interpretation of participants' descriptions, I consider how our social network site became a place of learning and teaching. From this I infer a conceptualization of *art teacher* as an identity that is not fixed, but fluid throughout our social network.

KNOWING AND LEARNING THROUGH NEW AND SOCIAL MEDIA

> Media, by altering the environment, evoke in us unique ratios of sense perceptions. The extension of any one sense alters the way we think and act —the way we perceive the world. (McLuhan & Fiore, 2001, p. 41)

Media, as McLuhan observed, prompts a shift of our knowing in the world. New media is further shifting our knowing in the world through the body. Quite often, new and social media is construed as a disembodied experience through the virtual, which has become synonymous with the digital. I have articulated that the virtual is woven into every aspect of both the digital and non-digital. Elizabeth Grosz (2001) stated that the virtual "is not a geometric, spatial, or technological concept, nor is it structured by phantasmic or imaginary projections alone; rather, it is the domain of latency or potentiality" (p. 86). Through our knowing bodies we are continually creating potential actualities by referencing embodied prior actualities in the enaction of virtuality. New media expands the space of the possible, between the virtual and actual, by implicating the dynamic and affective body; the difference is not in kind but in degree of affect and movement. Elizabeth Ellsworth (2004) described learning "as the sensation of coming into relation with the outside world and the other selves who inhabit and create that world with us" (p. 117). She continued by describing what new media does in learning: it is to

> give body to relationality as they keep potentiality and difference in circulation and motion. They put diverse and occasionally warring ideas, identities, sensibilities, traditions—and people—into relation with each other, actually or imaginatively. Media thus are imbued with the potential for catalyzing new forms of corporeality, new embodiments, new ways of knowing and being human. (Ellsworth, 2004, p. 126)

Learning through new and social media involves a qualitatively different experience, described through relationality, movement, and affect. Learning has been described in this dissertation as adaptation and anticipation. It has also been described as a reshaping of enacted interpretive framing in knowing between prior and possible actualities. What all of these descriptions share is a sense of the dynamic relational qualities of learning. In the examples of new media art described in Chapter 2, knowing bodies are brought together to relate in new ways. Through a relational aesthetic, a place or interval is created, reordering and reshaping the ways in which a knowing body connects and relates to others and the more-than-human world. This creates an interval for the reshaping of interpretive frames thus the reshaping a landscape of possibility.

Learning has also been described as operating at multiple scales—from the cellular to the cultural. The individuals and the collective community of artistic inquirers presented in this study acted as learning systems. As individuals, participants described what they learned: about themselves, their relationships, and the world around them; about inquiry through art, about how to use their digital cameras, and so on. From the data analysis of interviews that was conducted after the enacted curricular design, a pattern emerged in the coding of instances of learning. When participants were asked how they learned on the site, almost all of the active ones described learning as something that took place through relation with the collective knowledge system.

> **Mr. John Charles**: Has anyone taught you something new on the site?
> **Gaelan Knoll**: I've learned from other people on the site.
> **Mr. John Charles**: Can you describe in a little more detail how you're learning from other people on the site?
> **Gaelan Knoll**: Well, it's like how I learn from lurking on deviantART I suppose. Seeing other people's works, I find myself analyzing what works and what doesn't.

What Gaelan Knoll described is learning through relation with a collective knowledge system. The collective knowledge system is described here as representations of knowing mediated through a dynamic relational system of texts, dialogues, and art

posted to the social network. As Ellsworth (2004) described, it is the circulation and motion of potentialities that distinguishes the kinds of art learning made possible through new and social media. The spatiality and place of learning, at the scale of both the individual and the collective, shift through new and social media. Being in relation was not relegated to sixty-minute intervals in a classroom every other day. Rather, through our social network, time and space were not a fixed coordinate of relations. In other words, we were able to interact throughout the day in a variety of places. Spatially, relations between individuals and representations of knowing shifted. Some of the participants emphasized the ability to look longer at the art made by their peers without the embodied awkwardness of staring over someone's shoulder. Conversations between learners in embodied classrooms shifted in the social network, as dialogues were recorded and could be referenced through time. The difference was in the mediated persistence of those relations between individuals. They were not just static archives; they were continuing conversations and dialogues around ideas, always open to further elaboration and dialogue over time. Our relations between representations of knowing were continually shifting, changing, and evolving through our activity. Through our social network, the collective embodied a qualitatively different kind of history—one that could be accessed, enacted, and evolved through time, space, and place.

With the increasing use of social media, users are gaining a qualitatively different awareness of their social groups. Members of a social network are able to read about other members' statuses and comment updates, and view new photos that have been posted, all from their desktop or mobile computing device. Awareness of what one's social group is up to at any given moment has been termed *social proprioperception* (Thompson, 2007). It is an awareness of a social body, its condition, feeling, and position. This quality of awareness describes the relational quality between individuals and the collective knowledge system. It is formed through a pattern of recurrent and elaborating interactions between individuals and the collective knowledge system. A quick glance at the Recent Activity section on the main page of our social network quickly informed participants whether or not there was something new to look at since last online. Further, a quick browse of a page of thumbnail images gave participants a sense of what was there without a sustained conscious consideration of any one particular image. Participants indicated that if there was an image that received a comment or caught their attention in the thumbnail view, they would click on the image and look closer. There were many levels and qualities of interaction, from sustained looking and posting to quick scanning.

The act of looking is not passive on social networks. Recall Eduardo Kac's new media artwork *Teleporting an Unknown State*. In this piece, he created a work that illustrates a now present future. On our social network used for this study, views were tracked with images and activity. The more views an image received, the more it would come up under search filters such as Most Popular Photos. When an image received a comment posted in response, it would show up in the Recent Activity section of the Main Page. Looking and commenting raised the awareness of the collective body of individuals of what to look at. Through the actions of many individuals clicking, scrolling, looking, and commenting, we *taught* the collective knowing system through our social network. The medium was impressed and shaped by our activity, not only when that involved posting images and comments, but also when it was limited to the simple act of viewing. The difference now is that encounters and relations through new and social media "make *visible* what was before only present virtually" (Latour, 2005, p. 207). This makes knowing and learning art qualitatively different through new and social media. The difference is also in the dynamics of relations between individuals and a system of knowledge. The space, place, and time of learning are reshaped through these new qualities of relations.

LEARNING THROUGH ENCOUNTERING DIFFERENCE

> Media open and deliver to the "no-body's land" between identifiable coordinates on the grid. What they deliver are not merely meanings made different by their arrival in unforeseen, incongruous contexts. Media deliver difference itself. (Ellsworth, 2004, p. 126)

When participants were asked in the final interviews *What did you learn?*, many remarked about a visual style or a compositional technique like macro photography. They also described how they enjoyed exploring ideas about happiness, and how they learned to think about their art differently. Some remarked that learning was from comparing images, those they liked and those they did not, as a way to be able to *see* the differences. Some remarked they would remake the images they liked, never posting them, as a way to learn. Some described no one particular image, but the act of looking at the entire collection of images over and over again, as teaching them. Others remarked that the comments they received about their images were important for their learning, while others described learning even from reading the comments on others' images. Haine Walker, in two separate interviews, stated he(she) was learning through looking at what other participants were posting.

> **Mr. John Charles**: Do you feel like you are learning?
> **Haine Walker**: Yeah, because I am seeing different types of photography styles and they look pretty interesting. And I got more inspired to do macro shots when I saw other people's macros. I can't remember who it was, it may have been Milo Fishie or something.
> **Mr. John Charles**: Yeah, they do a lot of macro. So does Mango Jello.
> **Haine Walker**: Oh yeah, Mango Jello too. After seeing all of those macro, I am more inspired to do macros shots.

It was the act of encountering different interpretive possibilities that Haine Walker considered learning. Knowing and learning here is affective action, not passively taking in information, but encountering new possibilities and then enacting them. Using the language of complexity thinking, they represent critical points of instability that reshape interpretive frames (Capra, 2002; Davis & Sumara, 2006). Opti was able to describe, as a beginner, that photographs do not need to be "perfect." Through viewing different representational strategies of ideas, he was able to see the differences in how people approached artistic inquiry through photography. In addition to being able to see a wide variety of approaches to image-making and thinking, participants like Opti described how he felt better at giving more articulate and descriptive feedback to others.

> **Mr. John Charles**: What prompts you to respond to someone's image?
> **Opti**: If it interests me and it looks cool.
> **Mr. John Charles**: What's an image that looks cool?
> **Opti:** Well, I guess before doing this, I just thought of cool and nice photos as being like pretty and beautiful, like sharp and colorful and whatever. But I guess after doing this and seeing from like twenty people's point of view, I've learned that it doesn't have to be like sharp and like precise. It could be like blurry and have like movement. And then the rule of thirds. And then just different compositions. So I learned that photos don't have to be like one thing. Like art, it's not just one thing, it's how you interpret it that's important. So I guess, I still look for things the way that I thought were pretty and colorful, like that [referring to image on the computer], then I'd probably go for something like this [referring to image on the computer], or maybe, just any one of these. Cause before I didn't think of lighting and shadows, but like this [referring to image on the computer], through this project, I'd probably post something saying like "wow the lighting if fantastic, because it looks really nice."

stormy described encounters with different ideas as part of her learning process. For her, these were moments that acted as a kind of disjunctive, wherein her attention was drawn

to artworks that fell outside of her interpretive frame. This attention to difference led to an inquiry that reshaped what stormy thought was possible, and prompted further inquiry.

> **Mr. John Charles**: How do you think you've learned?
> **stormy**: I was learning by looking, seeing what other people were doing, trying to figure out why they were doing it I suppose. I suppose that's what it comes down to. Just that whole thought process, "oh that's interesting. What was that all about?"

Difference is not only about having a diversity of artworks, chosen and disseminated by participants represented in a mediated place, but also about the relation to those differences which are dynamically shaped by the activity of many individuals posting, commenting, and viewing. Encountering difference through new and social media is also rooted in the body across many different contexts. New and social media create *event potentials* (Massumi, 2002), in which mediated representations are transmitted into new and open contexts. The experience of logging onto our social network in a bedroom, at school, or on a mobile phone, all are new encounters that are unexpected and that cannot be planned by anyone individual. Ellsworth (2004) stated that "media give body to relationality as they keep potentiality and difference in circulation and motion" (p. 126). Difference is experienced through new and social media through the dissemination of representations of knowing chosen by individuals and the encounters with a collective's knowledge system in unexpected contexts. And the activity on the social network continually changes the form of the collective knowledge system through the addition or subtraction of images, texts, and views. These dynamics keep potentiality and difference in continual motion.

SHIFTING THE SPATIAL

Inquiring through art in an online community shifts the spatial relations between individuals and representations of knowing. This was perceived and described by participants as a quality in learning art through our social network.

> **Gaelan Knoll**: I find I don't really see what is going on. Other than in my own thing in class. So it is nice to see what other people are doing in class.
> **Mr. John Charles**: And to also be able to think about what other people are doing.
> **Gaelan Knoll**: Yeah and you also get more ideas by looking at other people's work. It is hard to do things by yourself. To be able to see what other people

> are doing. In class, I always tend to be peeking over, I don't talk to anybody, so... online is easier. It is less awkward.

Gaelan Knoll was describing a comfort in being able to closely examine her peers' work without having to be physically close. If Gaelan Knoll wanted, he(she) could look at an image far longer than if he(she) were standing in front of it with the artist next to him (her). His(her) statement, "I don't talk to anybody" also needs to be taken into account: what might also be at play is a reluctance to engage with his(her) peers. However, Mango Jello also elaborates that for her, the ability to engage with her peers' art by viewing their images online is different than viewing on the art classroom walls.

> **Mr. John Charles**: Do you think this could work in an art class?
> **Mango Jello**: Yeah, sometimes with your art class you don't get to see other people's work, sometimes it is up on the walls but you don't really… I don't know, like here [our social network] is a place where you can share it and everyone can leave comments and stuff. If it's hanging on the wall you can't quite leave comments. Especially if you don't know the person. So it is kind of a good way to share and get new feedback and everything. So I think it would work pretty well.

Here we see the difference of new and social media as an event potential. Participants like Mango Jello and Gaelan Knoll describe a difference in the ability to engage and dialogue through new and social media. Of course, one could always leave comments in an art classroom. However, as Ellsworth (2004) and Massumi (2002) describe, new and social media's ability create encounters, in open contexts as chosen by the participants, represents a difference in posting and receiving comments about art. Comments on a social network are archived and dynamic. When comments were posted on our network, the system offered notifications to everyone who had commented on the same page, including the artist. On the Recent Activity section of the Main Page, the most recent comments posted were listed. Comments were also dynamic through time; dialogues could be revisited and they evolved well after the initial comments had been posted.

LEARNING THROUGH DIALOG

Participants indicated that posted comments were part of their learning. Sophie Lee responded to comments that specifically addressed design or technical qualities, and tried to incorporate them into her images. However, she never posted those improvements.

> **Mr. John Charles**: What kind of comments are the most useful for you? When someone comments on a photo, which do you find are the most useful? Are there any that you remember that someone's made?
> **Sophie Lee**: Oh, the ice cream one. Ah, the picture of the ice cream one. I think it was ah… Yeah week five. I believe stormy said something about how the colors would be more balanced if the bowl was white. So, um yeah this one [referring to computer] so then I tried Photoshopping it. I tried it. But I didn't post it. But, yeah, I think I should probably post it.

Confirmation and affirmation of representations of knowing that resulted from artistic inquiry were significant in our community. Participants described how they learned from looking at each other's comments. Having a place that archives and makes public the dialogues between individuals is a significant difference in embodied teacher-student or peer-peer learning. The ability to view comments and dialogues posted by other participants about others' artworks was also significant.

> **Gaelan Knoll**: How else did I learn? Um… In reading people's responses, I guess, helped me learn. Yeah, 'cause you read a response, like when people say, oh that looks interesting. You try to figure out what looks cool, what would work in a photograph. Yeah.
> **Mr. John Charles**: Have you ever taken a photography class?
> **Gaelan Knoll**: Never [laughs]. And then…yeah, it helped with that, especially after you commented on other people's stuff and I was like oh, those diagonals and the color and line. That helped because I would think about those when I would go and take pictures too.
> **Mr. John Charles**: So you would get...
> **Gaelan Knoll:** Feedback from other people's feedback.

Participants like Gaelan Knoll described how they analyzed the differences between images to make decisions on what was "good" and "not so good", and in terms of what made images they would like to make. As Opti pointed out, having 20 different perspectives and being able to compare differences to make decisions provided an opportunity for participants to learn from the collective knowledge system. Specifically, comparative analysis enabled participants like Gaelan Knoll to be able to make distinctions of what stylistic, technical, and conceptual qualities they had an affinity towards. Comparative analysis offers a way to be able to understand difference at a number of qualitative levels when viewing art in a classroom (Koroscik, Short, Stravropoulos, & Fortin, 1992).

REHEARSAL

Much debated in art education is the issue of copying: whether we should allow for it or not (Duncum, 1998). Victor Lowenfeld (1964) stated: "Never let a child copy anything!" (p. 54). It has also been found that copying is one of the preferred methods of learning how to draw for children (Wilson, 1976; Wilson & Wilson, 1977). The types of copying typically found in art classrooms are more nuanced than attempts to create exact replicas of what is seen (N. R. Smith, 1985). Recent research in neuroscience has shown the human brain has a specific type of cell called *mirror neurons*. A mirror neuron is a type of neuron that fires in a person's brain as readily as when he or she is observing the actions of an other, as when he or she performs the action (Rizzolatti & Craighero, 2004). The significance of this insight into the neuroscience of learning is that our bodies physically respond to observed behavior and action as if we were performing the action ourselves.

As described previously, participants like Haine Walker, when encountering difference, were inspired to enact their understanding of those encounters through their own art-making. As with Sophie Lee, that kind of learning was not always observed on our social network. Here, again, we see the openness of the context our social network provided, wherein participants could create, through their encounters with others' artworks, embodiments of those ideas and visual forms. Opti described viewing images, going out with his camera, and trying what he had encountered on our social network.

> **Mr. John Charles**: What do you think you learned from this project?
> **Opti**: Well, the thing I said before, that photos don't have to be necessarily pretty and sharp they could be anything you want, just any way you interpret it. 'Cause it's not set in stone. Like photography has to be this and this and this and nothing else, like art it doesn't have to be a certain way, like abstract, cubism, and whatever so.
> **Mr. John Charles**: What taught you that?
> **Opti:** I guess through the eight weeks of this. From just looking at the photos, I say like, "oh that's different" then I said, I'd say to myself, "I wouldn't necessarily think of doing that". So then I'd go out and take a picture like that and not necessarily post it on, just for fun. And then I'd be like "oh that's neat."

Opti went on to elaborate that he was not in the habit of posting the images that were "just for fun." Opti described that he was happy with those images where he was rehearsing, and that he saw them as play. As with Sophie Lee, it was beneficial for his

learning and not something that he would necessarily want to contribute to the collective. The act of rehearsing and elaborating what was encountered in our social network was an event potential of active engagement. This was a result of encountering difference in representations of knowing, and then elaborating on those representations through local contexts and interpretive frames.

AFFECT AND LEARNING THROUGH NEW MEDIA

> What is it, then, to sense one's self in the midst of learning as experience, in the movement of learning, in the presence coming knowing, in this interleaving of cognition and sensation/movement? (Ellsworth, 2004, p. 135)

Learning through new and social media is a felt experience. When participants were asked how they knew they had learned something when interacting with our social network, many indicated that they knew because of their experience of a positive affective response. Affect and sensation both entrench basins of attractors and reshape the interpretive frames we enact (Juarrero, 1999). Though not exclusive to new and social media, affect and sensation are a part of learning art online. Many of the participants described this as a pleasant feeling, and one that was difficult to describe. Both Ellsworth (2004) and Massumi (2002) have located this in the distinction of the *I* being smudged, where the delineation of *self* and *other* is dissolved. Learning and inquiring with and through new and social media extends the knowing body into new relations that can be felt. These qualities of learning are many times unspeakable and difficult to describe, because they lie in affect, sensation, and movement. Gaelan Knoll attempted to describe this feeling as follows.

> **Mr. John Charles**: How do you know when you have learned something?
> **Gaelan Knoll**: You go "ding!"
> **Mr. John Charles**: Is there a little sound that goes "ding?"
> **Gaelan Knoll:** Well not literally a sound. But a feeling, like "oh…".
> **Mr. John Charles**: Talk about that feeling…
> **Gaelan Knoll:** It's a nice feeling, 'cause then sometimes you, you mull over like a picture or a photograph and you go "I don't know what's wrong. It doesn't look right." Then by looking at other people's photographs. I can't think of an example. Then… I guess you gotta… you feel happy, not happy. It goes "ding" in your head. Yeah. Hum… 'cause you're sort of looking for something, anything, to help you. Then when you finally find it in somebody else's response. It's a feeling.

Being in relation with a collective knowledge system through new and social media is one of affect, sensation, and movement. Here Gaelan Knoll described this quality of relationality as emerging from the act of viewing, clicking, scrolling, and selecting art. Sophie Lee described it as a process in which encounters with other participants' art and their comments/reflections prompt an affective movement. It was a felt event of an interpretive frame being reshaped, in which something formed that had not been previously available to her conscious awareness.

> **Mr. John Charles:** How do you know when you've learned something?
> **Sophie Lee:** Ah, yeah, sometimes after when you look, ah.... I guess. Like something just like clicks and you're like "oh this is what they did." Like maybe how they, the composition is I guess. Like for the bridge one, you can say "oh she did the framing." You can do that. And with the reflection. You can say, "oh that's how she did it." You just know.

It is not that what was there did not exist; nor did Sophie Lee acquire some "thing" in the process of learning. Rather, learning is the felt materiality of a reshaped interpretive frame, a new landscape of possibility. Both Gaelan Knoll and Sophie Lee described the experience of learning in relation to our collective knowledge system online as a sharp or distinct event: not too loud or harsh, but as a quick shift towards an expanded awareness.

DYNAMICS OF ATTENTION AND LEARNING THROUGH NEW AND SOCIAL MEDIA

Students learn from each other by looking at each other's art in the art classroom (Hagaman, 1990; James, 1996, 1997; Kakas, 1991; Wilson, 1976, 2004). But how do we know who is looking at whom? What happens in learning through looking when it is online and the spatial relations have shifted? Who gets the attention? These kinds of attentions and influences resemble the dynamics of a decentralized network.

In addition to Mango Jello, Sophie Lee also posted a significant number of macro photographs. When it was pointed out to Sophie that a lot of her peers were now posting macro photographs, she stated that she had not noticed. With the exception of stormy and myself, participants did not state that they were ever seeking to influence their peers or gain attention through their artworks.

> **Mr. John Charles**: Have you noticed that a lot of people on the site have taken up macro photography.
> **Sophie Lee**: Yeah, I guess... like macro pictures? I am not really sure.
> **Mr. John Charles**: Like if you look through … a lot of them do. Like Haine Walker, Gaelan Knoll, some of Sunshine's work.
> **Haine Walker**: That is pretty cool. I like macro pictures. But I also tried to do different styles.

Opti, as shown in Week 5 and 6, did somewhat notice his images were drawing attention, but he was at a loss to explain why anyone would choose his images. From interviews, I deduced that the only participant who was actively seeking to affect the ideas and images of other participants was stormy. And stormy was mentioned by many participants as an inspiration due to how she gave feedback and the types of images she posted. Otherwise, participants did not actively seek to influence or shape the learning of the other participants.

Our idea of the Internet as a totally egalitarian place where attention is distributed evenly and equally is far from the dynamics observed online. Barabási and Albert (1999) found the Internet to be a decentralized scale-free network which grows in a *rich-get-richer* fashion. This means that nodes with more links get more links in proportion to their already established ones. It is dynamic of preferential attachment wherein ideas or people receive proportionally more associations based on the associations they already have (Watts, 2003). This dynamic was not driven by computer algorithm alone; it is also driven by human action. As the architecture of complex systems, decentralized networks are dynamic structures that are constantly adding and pruning new links, nodes, and hubs.

In our social network, links were defined as associations between ideas and participants, nodes as ideas or participants, and hubs as those ideas or participants that seemed to draw most of the associations. We know peers learn from each other in art classrooms, and what this metaphor suggests is that peer learning of art online is characterized by certain dynamics—where attention begets attention through dynamic associations. This was observed in the attention that Opti's ideas received in Weeks 5 and 6, and in the attraction to macro photography. This dynamic is explored more in-depth in Chapter 8.

> The primary effects of creative interaction within such networks is to render obsolete the distinctions in absolute terms between the artist and viewer as producer and consumer, respectively. The new composite role becomes that simply of participant in a system creating meaning seen as art. This contrasts forcibly with the Renaissance paradigm of the artist standing apart from the world and depicting it and the observer standing outside of the artwork receiving this depiction. It was a paradigm that placed the scientist, also, outside the world, looking in, and in turn led to all kinds of alienation and separateness in society. (Ascott, 2003, p. 215)

These insights into learning suggest that teaching art through new and social media is not necessarily rooted in the identity of any one individual. Just as Ascott called for the identities and roles of artists and viewers to be reconsidered through new media, so should the identities of art teacher and art student be reconsidered through new and social media. Instead, following Ascott's line of thought, we should view the teacher and student as not residing in any one individual, rather as a *participant* in a dynamic system of meaning. This echoes Graeme Sullivan's (1993) conceptualization of art education, wherein "teachers and students become co-participants in learning and content is approached and acted upon in different ways and from various viewpoints" (p. 8). It is not as if this cannot happen without new and social media; rather, these roles and identities are dynamically and continually being reshaped through the teaching and learning art through new and social media. To teach art meaningfully in these spaces, identities shift—becoming fluid and dynamic.

Further, the definition of teacher as a singular individual needs to be expanded to include images, objects, events, encounters, movement, sensation, affect, and so on. If learning exists at multiple scales, from cellular to cultural, then so does teaching. As has already been re-presented, participants learned through relating to a dynamic knowledge system of mediated representations of images and texts in open contexts. Who was the teacher here? Me? stormy? Opti? Haine Walker? Images made using macro photography? Of course I acted as a hub by proposing constraints, commenting, and designing the curriculum. However, I cannot fully account as the causal source for the kinds of learning presented. No one "thing" can; rather, it was a dynamic interdependent system of relations between participants through new and social media. Teaching art in and through new and social media creates a space that becomes a place, which itself is a

certain kind of constraint. This kind of constraint teaches: the images teach, the dialogue teaches, and the act of inquiry teaches.

I use the root of the word teach, “to point out”, as an understanding of teaching that points towards the edges of our enacted interpretive frames. Teaching as “pointing out” can be saying something as simple as “Look at that.” It can be a dialogue between two participants about an image that changes how someone sees and interprets an image. And that someone might not even be the two engaging in the dialogue online; it could be another participant who is merely following along. In a landscape of possibility, teaching is pointing out the contours and basins as a way of calling attention to features that were not a part of the shape of an enacted interpretive frame. A simple comment posted in response to an image on our social network, like “Hey, your image is cool,” would draw attention to that image, pointing it out to the collective of artists. It would also point it out to the collective knowledge system, thereby teaching what is important and should be looked at. The medium of social networks made this possible: views could be counted, activities could be archived and accounted for, made persistent and public. It shifts the spatial dynamic of relations between participants, ideas, images, texts, and so on.

Teaching art through new and social media does not mean that the responsibility of what we have come to know as an art-teacher identity is dissolved. What shifts is how the responsibility is distributed throughout the collective. In Chapter 5, I asked, *What if the knowledge already existing in a collective is the support and starting point for new forms, ideas, and artistic inquiry?*

The identity of a complex system and its recursively elaborative pattern of activity are sensitive to context and initial conditions (Juarrero, 1999). As explored in Chapter 5, the initial conditions of context-sensitive constraints enabled a particular kind of artistic inquiry. Recall stormy’s reaction to the kinds of prompts presented by student participants in Week 6. She was impressed but not surprised, because she understood that the initial conditions and context of the curriculum had shaped the kinds of inquiry and thinking throughout the system. How important is it, then, for an art teacher to design and enact those initial conditions and constraints that are context-sensitive to enable artistic inquiry? As a complex dynamic system of artistic inquirers develops, a history and pattern of interaction is shaping and supporting future inquiry. A system of relations through new and social media can support inquiry and distribute the responsibility of an art teacher. The collective also teaches.

SUMMARY

In this chapter I re-presented an analysis and interpretation of knowing, learning, and teaching art through new and social media. Learning through new and social media was a qualitatively different experience, described through relationality, movement, and affect. This relationality was with and through a collective system of knowledge, in which individuals are shaped through dynamic interdependent activity in a social network. The medium of the social network enabled a qualitatively different way of relating, thus affecting learning and teaching art. What these insights suggest is that knowing and learning through artistic inquiry in new and social media enables encounters with difference, both in ideas and contexts; shifts the spatial relationality; can be felt through the body; and possibly embodies the dynamics of scale-free decentralized networks. From this I have inferred that teaching art online involves fluidity and dynamics of identity. This identity is one of co-participant. Furthermore, teaching art through new and social media is distributed, from encounters with a collective knowledge system. New and social media opens up new possibilities for engagement and participation. I now move to consider the role that identity has played in participation through our social network.

CHAPTER 7: IDENTITY AND PARTICIPATION THROUGH NEW AND SOCIAL MEDIA

This chapter re-presents an analysis and interpretation of identity and participation in this study. In the last chapter, I concluded with a conceptualization of art teacher as fluid and dynamic, meaning that who or what teaches art in and through new and social media is not fixed to any singular person or object. Part of the purpose of this dissertation is gaining a better understanding of learning and teaching art through new and social media. In the process of post-design data analysis of interviews, the pattern of identity and participation became significant. The purpose of this chapter is to address this question that emerged from the research: what roles did identity performance and construction play in participation in the study and in learning art online? In this chapter I explore, through interviews, participants' experiences and interpretations of identity and participation through new and social media.

It was not my original intention in the design of this study or curriculum to have a space of complete anonymity so contrived as to constrain possible forms of artistic inquiry. I wanted a space that was password-protected, accessible only to those who were participating. The concerns of the Behavioral Research Ethics Board (BREB) were that even in a password-protected online environment, there was still risk of participants' identities being linked to their physical identities. As a result, participants had to create a pseudonym and refrain from posting any images or texts that could be linked to the identities of them, other participants, non-participants, and the school, which shaped the design of the study and curriculum. This constraint, however, led to the emergence of the question of identity and participation online.

SPACE, PLACE, AND IDENTITY

Space can only be experienced and observed through and with time. The interdependence between space, place, and time challenges notions of a space or place as fixed or static. Place is understood here as a space and time of particulars, and identity is interwoven into and through the spatiality of place. It is described, in the contexts of new and social media, as patterns of activity. Identities are coherences through and contingent on the spatiality of place.

In our social network, relations were reshaped by participants having to construct and perform identities that were not explicitly linked to their physical identities (Massey,

1994). Through new and social media, our activities were recorded as flecks of identity (Fuller, 2005). Our flecks of identity created a pattern that was traceable. From these traces whole webs of associations could be drawn and subjected to interpretation when making distinctions about what made one identity different from another.

PLACE AND IDENTITY IN ONLINE CONTEXTS

Online identities are interpretations of patterned activity that generates flecks of identities: images posted, profile pictures, pseudonyms, links bookmarked, sites visited, comments posted, videos watched, and so on. An agent can consciously and deliberately construct these flecks, and they can be organized through an interpretive framework by an observer. Both an individual's actions construct his or her own identity and the observer's interpretation of that pattern of activity construct an identity.

The intersection of these patterned actions and interpretations of a collective of individuals forms a place. *Place* is a space with a history of overlapping and intersecting actions, interactions, and interpretations that shape identities and relations. The history of actions and interactions are recorded as flecks, and interpreted by others to further guide future actions and interactions. Those interpretations of identity, as we will see from the participants' descriptions of identity, are significant in how they affect participation and subsequently learning in art.

LEARNING, TEACHING, AND IDENTITY

In the last chapter, I explored how learning was both affected and occasioned by the place of the social network. Ellsworth (2004), Brian Massumi (2002), and Elizabeth Groz (2001) articulated learning as something that is occasioned through movement, affect, and sensation through time and space. In this study, the place of the social network was that interval for participants to learn art not only through engagement with and through others' representations of knowing, but also through the explicit reconstructions and re-presentation of identities. The social network provided an opportunity to construct an identity that could be interpreted as disconnected from a body. However, the body was always referenced in the construction and performance of an identity online. For some participants, being able to construct an identity that might reshape the social relations they experienced in school enabled a high level of participation. In contrast, a few participants felt disabled by the restrictions of not being able to post works that showed faces or recognizable places and one in particular did not feel comfortable not knowing the physical identities of those online.

IDENTITY, PARTICIPATION, AND LEARNING

This chapter examines how identity both disabled and enabled participation in this study. I first examine how participants constructed their identities through those flecks: profile images, language, and gender. Then I look at how the restrictions on posting an identity linked to a physical one disabled participation. Four themes became apparent in participant interviews: (a) anonymity as leveling the playing field, (b) shifting the social structures of school, (c) safety to participate, and (d) the possibility of authentic feedback. I also consider how being anonymous on the site created interpretations of identities outside of the expectations of the teacher participants. It should also be noted that for a number of participants, it did not matter whether or not they had to either construct an identity that would keep them anonymous.

CONSTRUCTING FLECKS OF IDENTITY

Participants had a number of modes available to represent themselves, without revealing a physical identity. They are organized as follows: (a) pseudonyms and profile images, (b) language, (c) images, and (d) gender. Participants were required to choose pseudonyms that could not be linked to their physical/legal identities; their profile images were not to represent themselves directly, however, they were encouraged to create a visual metaphor of themselves. Some participants, both students and teachers, described how they controlled their language to present a particular identity. Images were also considered important to participants who were concerned with keeping themselves completely anonymous, by controlling what could identify them in the images. Gender was used by two participants either to further conceal their physical identities or because it was an already common online practice for them.

PSEUDONYMS AND PROFILE IMAGES

The motivations for choosing pseudonyms and profile images can be described as two-fold: first, as a way to represent an idea of self visually through personal affinities and second, as a way to further conceal identity. Both Mango Jello and Sophie Lee chose profile images of objects that represented an image of themselves.

> **Mr. John Charles**: Why did you choose the self-portrait you did? Is this an image you use on other web sites to identify yourself or do you use different ones?
> **Sophie Lee**: I use different ones. I think that self-portrait is supposed to represent myself... and so I feel like I'm the kind of person who takes studying seriously and basically I think it is how other people view me as well. It's like

> they would look at me and know that I'm the person who gets good grades who in other words are called "nerds." So I took some of my books and a binder and some pens and placed them in a way I see it in my head and took some photos of it.

Sophie Lee presented a description of herself as representing her own proclivities and how she thought people perceive her at school. She visualized what objects would represent this perception and arranged them in a way that also reflected her understanding of photography and design. Sophie also stated that this image was created solely for this study. This was true for most all of the participants: they constructed pseudonyms and profile images that were different from those they used anywhere else in their online activities.

> **Mr. John Charles**: Why did you choose the self-portrait you did? Is this an image you use on other web sites to identify yourself or do you use different ones? If you've changed your profile picture already, why? Would you again?
> **Mango Jello**: I chose my self-portrait because I love to listen to music and I use my iPod everyday, so I thought it would be a perfect self-portrait of myself. I changed it because the first picture I put up was just there until I was able to take another one to replace it. I don't think I would change it again because music is something I enjoy and I don't feel the need to... but you never know I could take a picture of something better.

Mango Jello described how her first image posted—a close-up image of pencils—was just a placeholder until she found an appropriate image. This was also characteristic of how participants treated their profile images. To them, profile images were fluid, temporary, and suitable to the moment. There were no commitments to sticking with a profile image over time. As Mango Jello described it, she could always find something better to use to represent herself in the future. Gaelan Knoll chose an image that was going to conceal his(her) physical identity yet represent himself(herself) in the relation to the social network.

> **Mr. John Charles**: Why did you choose the self-portrait you did? Is this an image you use on other web sites to identify yourself or do you use different ones? If you've changed your profile picture already, why? Would you again?
> **Gaelan Knoll**: I chose the self-portrait I did because I was looking through my backyard for inspiration (nothing really interesting in my house), and I felt the bathtub did the best job of representing me. It was totally out of place, being a pink bathtub in the middle of my backyard, and I feel that represents me on this site. I was feeling like I was stepping into something totally new-

> and I was, being a sketcher and painter more than a photographer. The self-portrait was actually the first time I've taken pictures as art pieces. I think I would only use it as a self-portrait on this site, because it represents me in relation to the site.

Gaelan Knoll described how he(she) perceived himself(herself) as being out of place, as an artist where photography would be the primary medium used to make art. Gaelan Knoll also described, as did many others, that he(she) chose a profile image in relation to his(her) own perceived role and relation to the site and study. It is here we see that teens implicitly, if not explicitly, understand the contingency of identity to place in online activity. Place as a particular intersection of social relations brings forth a particular response, construction, and performance of identity for teens online. Haine Walker described how his(her) profile image was chosen for the way it looked, and to conceal his(her) identity.

> **Mr. John Charles**: Why did you choose to use the self-portrait that you did?
> **Haine Walker**: Well, the first self-portrait I did was pencil crayons, I decided to do that because, I use pencil crayons a lot. I am more of a traditional artist person. And I am not an adult with a job where I can go to the studio and get paints and all that and go crazy. I just use pencil crayons. Then I changed it to one of the dandelion pictures that I took because I like the way it looked.
> **Mr. John Charles**: Is that an image that you used on other websites to identify yourself?
> **Haine Walker**: No, because on other websites there is people from this school and they are doing this as well. And I don't want to give away my identity.

Initially, stormy chose a pseudonym and profile image to conceal her identity. Her first identity posted was the cartoon character Wile E. Coyote, complete with an image of the character holding a sign that said "HELP." stormy discussed at length how her profile images online were chosen both to fit the context of the social network and to serve as a placeholder of events in her life.

> **Mr. John Charles**: I wanted to ask you about your choice of your pseudonym?
> **stormy**: I don't even know... I was having a conversation with someone about Wile E. Coyote and Road Runner. Oh it was a friend of mine. We were out with his daughter and somehow we were talking about, would it be better to be Wile E. Coyote or Road Runner and I just kind of liked the name Wile E. And I know that in the cartoon he is represented as this kind of looser

[laughs]. He basically gets defeated every single time by Road Runner and he just, is very, he's got a lot of perseverance this coyote. But he's not very wile though. I have no personal connection to Wile E. Coyote. I didn't choose it because it represents me as a person.
Mr. John Charles: But about what you were thinking about at the moment?
stormy: Exactly. It is just kind of a cool name, fun character. I'd say one of my avatars on my bike forum is the Power Puff Girl Buttercup, she's the green tough one. That's one of my avatars and another one is Smurfette, so it is sort of like random.
Mr. John Charles: Well it's interesting cause my next question was, it's obvious from your description you don't feel stuck with an avatar when you choose it.
stormy: No, no it's not like, I just pick things that I think other people might think are kind of interesting or fun, but not … something that I like but nothing that relates to me or who I am. It might remind me of the day with my friend Sam and his daughter. Actually I can't even remember the discussion we were on about Wile E. Coyote. It may have even been with my niece one morning. But... while I was making it up I was thinking, should I change it to Road Runner because he always wins. Then I was like no, no I like the name Wile E Coyote. It's almost the way it sounds more than anything..

After a week into the project stormy changed her pseudonym and profile image to an image of clouds, which she used throughout the study. Profile images were contingent not only on the participant in a social network but also on the place of the social network. They were also not fixed or static, and there was an understanding that they acted as a placeholder for representing self in relation to the spatiality of place. When the spatiality of place shifted, a more appropriate image for the context and the participants' situation would be chosen and posted. Even I changed my profile image because I had sensed during Week 6, when I was responding to all of the participants' posted prompts and questions, that I had become someone different in relation to the spatiality of our place.

LANGUAGE

Participants also considered controlling and selecting the language they used, from textual descriptions of images to comments on someone's wall, as a representation of their identity. Haine Walker especially was sensitive to how language constructs an identity online; this was evident in his(her) ability to identify stormy as one of the teachers. Many of the participants used emoticons, textual representations of facial expressions, and shorthand like *LOL* meaning *Laugh Out Loud*, in their writing. It was generally assumed by the student participants that teachers and adults do not use these sorts of writing conventions. However, stormy and I did adapt to the prevailing dialogue

conventions subtly and gradually over time, with some participants even mistaking stormy as a student. Haine Walker was very conscious of how he(she) used language on the site.

> **Mr. John Charles**: Do you know who the teachers are on the site?
> **Haine Walker**: I think Ms. P is stormy.
> **Mr. John Charles**: Why do you think that?
> **Haine Walker**: Because it sounds like her personality.
> **Mr. John Charles**: It comes through in her writing do you think? Could you think of an example of…
> **Haine Walker**: She is very happy, sometimes as she writes with a lot of intent on happiness on there and I am like that sounds like Ms. P cause it is a little eccentric and stuff. It is pretty cool.
> **Mr. John Charles**: Eccentric? What do you mean by eccentric?
> **Haine Walker**: You are not afraid to go "oooohhh" on the site or screaming or typing ha ha ha or something. You are acting, just showing yourself and who you are on the site.
> **Mr. John Charles**: Do you feel like you are acting more like a teacher or more like a student?
> **Haine Walker**: I am just trying to act as neutral as possible..
> **Mr. John Charles**: And why is that?
> **Haine Walker**: Like typing wise and stuff… Well it is just fun being anonymous, right, because I don't want people to know who I am. Except for week two's picture, because then I had my friend's do it. Because it would have been kind of obvious. But it is still fun being kind of anonymous.

IMAGES

Participants like Haine, who wanted to keep their physical/legal identities from being linked to their online ones, commented on how they had considered all of the associations with objects, places, and people that could be used to make those links. Gaelan discusses how she used his(her) mother's mobile phone instead of his(her) own, in her response to the week five project (Figure 5.26).

> **Gaelan Knoll**: It's her phone. I pretended it was mine. Because everybody knows what my phone looks like too. My friends were talking about it, saying that can't be Gaelan that's not her phone.
> **Mr. John Charles**: Oh so they, to identify you, they were looking for objects.
> **Gaelan Knoll:** Yeah, they were like, "that can't be Gaelan". I was right behind them laughing.

Additionally, Haine Walker thought (he)she had revealed his(her) identity with the week two projects by showing blurred and cropped images of his(her) friends. However, Haine Walker still attempted to remain anonymous to the other participants, including (his)her art teacher stormy.

GENDER

Gaelan Knoll also took some pleasure in the challenge of remaining anonymous through considering everything from language to the objects depicted in photographs. Only two of the participants, Haine Walker and Gaelan Knoll, deliberately presented themselves online as not their biological gender. Throughout this dissertation I have presented them as male(female) because it was how they wanted to be perceived online. In school, their physical, biological, and social identities were self-identified as female. They had similar reasons for presenting themselves as males to conceal their identities, by choosing to represent themselves as far from their school identities as possible. On the one hand, Gaelan Knoll indicated that (he)she had often performed a male identity online, previous to participation on this site.

> **Mr. John Charles**: I noticed that you listed yourself as a male. Why did you...?
> **Gaelan Knoll**: It's a habit. Yeah, I don't know why. I play those online games and I am always male. My guy friends are always a girl. It is just this thing we do. I don't know why.
> **Mr. John Charles**: Do you think people will treat you differently if you are listed as a male?
> **Gaelan Knoll:** I don't know… I just have an inclination to do it. Like I know some people on deviantART do the same thing. They pretend that they are guys. I don't know, sort of you feel stronger… not really. Yeah, stronger.
> **Mr. John Charles**: Stronger in what ways?
> **Gaelan Knoll**: I don't know... because guys are always seem to be stronger, sort of. I guess it is not good to be serious with people like that.
> **Mr. John Charles**: It is interesting that you are using this stereotype to your advantage.
> **Gaelan Knoll:** Yeah, I don't know why. I have always done it. Since I started high school, I have always been a guy.
> **Mr. John Charles**: Oh, so you have been doing it for a number of years?
> **Gaelan Knoll**: Like online games it is mostly what I do. I play the guy character. And then … on deviantART I chose a guy name. I don't know why.
> **Mr. John Charles**: Have you ever posted yourself as a girl?

> **Gaelan Knoll:** Yeah on deviantART, eventually I decided to show myself as a girl incase they didn't believe I was the person who drew it if I meet anyone in real life. Yeah, I post myself as a girl… Facebook, because you have to.
> **Mr. John Charles**: Do you find there is any difference in how people treat you?
> **Gaelan Knoll**: No, they treat me the same. It's just personal.

Haine Walker, on the other hand described the decision to perform as a male a just another layer of masking his(her) identity.

> **Mr. John Charles**: Would you say that the name "Haine Walker". Is that a guy's name or a girl's name?
> **Haine Walker**: It is a guy's name. Well, I pronounce it "Hi-Nay", because when I was thinking of a user name I was trying to think of something really cool. There are these two manga, Japanese comics that I am reading. And there are these two main characters, one is called Haine and the other is called Allan Walker and I decided to just combine them.
> **Mr. John Charles**: And so why did you choose a male character?
> **Haine Walker**: Just to make it less obvious. And also because they are some of my favorite characters anyways.

Haine Otomiya is actually a female character from the manga *The Gentleman's Alliance* and Allan Walker is a male character from the manga *D. Gray Man*. Both plots center around these two main characters who are both fifteen years old, the same age as Haine Walker. In Haine Walker's use of language and online posting of gender, he(she) tried to project a self-described male identity. Like stormy, Haine Walker chose characters from popular culture. But Haine mashed up two of them to create a new identity of his(her) own. Haine Walker became a site for the intersection of his(her) relations to the site and popular culture. Like Haine Walker, Gaelan Knoll mashed up two identities: Gaelan a favorite manga character of his(hers), and Knoll came from Thomas Knoll, the lead author of Adobe Photoshop. In choosing the name Knoll, Gaelan described that he(she) got it from the About/Startup screen while waiting for Photoshop to boot up.

Performing a different gender online is not an uncommon practice (Bryson, 2004), especially for teens (Ito et al., 2008). Many times it is part of a pattern of posting misinformation to mislead those who do not know the person's physical identity (boyd, 2008). For Gaelan Knoll, it was a bit more complex than just posting misinformation like Haine Walker did. It was part of a pattern of activity in online places. Perhaps his(her)

effort to disguise his(her) identity came from the anxiety of his(her) parents, who initially discouraged his(her) participation in this project over their fear that his(her) physical identity would be linked to his(her) online one. Gaelan Knoll, as interpreted from our interviews and his(her) behavior online, was quite savvy in constructing and presenting identities online. On sites like deviantART, Gaelan initially presented himself(herself) as a male because it made him(her) feel more confident, but now as Gaelan became more confident, he(she) felt the need to begin presenting a more aligned online/offline identity for a possible future career in art. Identity-play such as this is common for teens (Buckingham, 2005a). The performance and construction of identities are contingent on the spatiality of place and the intersection of perceptions, interpretations, and descriptions of social relations and identities.

DISABLING PARTICIPATION

For participants like Haine Walker and Gaelan Knoll, anonymity enabled them to participate in ways that they perceived they could not in school. They both mentioned that they did take risks in revealing their identity by posting blurred images of friends and images of identifying objects or places where they spent a lot of time. The following describes how participants took risks of being identified through their images and style, how this constrained some participants from posting their work at all, and how not knowing the physical identities of participants created a place that restricted participation.

RISK OF LINKING ONLINE AND OFFLINE IDENTITIES

For some participants, the content requirements that they not post any images, videos, or text that could link to a physical identity of participants, non-participants, or the school, became a disabling constraint.

> **Mr. John Charles**: Were there draw backs to being anonymous?
> **Gaelan Knoll**: Yeah, sometimes you can't post a picture for fear they will find out who you are.
> **Mr. John Charles**: So you found yourself second-guessing?
> **Gaelan Knoll**: Yeah, I need to be more careful. Yes, you can't sort of be free, yeah. Especially with those last art room photos. It was kind of weird that people would find out who I was. But I decided to put them up anyways. I think some people could probably figure me out after those. And then I wanted to post some pictures of my violin for the happiness ones but I couldn't because they all know what my violin looked like.

Gaelan Knoll's perception that objects and places that he(she) was associated with would identify him(her) were his(her) largest concern. Gaelan Knoll attempted to balance the risk associated with posting images that were important to him(her) with the risk of being identified.

One my personal interests in the study was the possibility that participants would engage in video production. Early on in the study, I posted, in addition to still images, videos for my responses in hopes of modeling the types of time-based work that could be produced while still meeting the confidentiality constraints on content. However, it seemed that the element of sound was another layer of information that was too much for Haine Walker to handle and still meet the content requirements.

> **Mr. John Charles**: Are there any other projects that you would like to try? Or suggestions for changes? Anything that you don't like about the site so far?
> **Haine Walker**: I think they are pretty cool. It would be nice to see more videos. But I am guessing since most of us are students, it is kind of hard to do video with no voices. I tried to do that…
> **Mr. John Charles**: You can do voices, but you just can't do names. Maybe I should post something saying "try video". You can post something as long as we don't see faces or say your name.
> **Haine Walker**: I was videotaping a whole group of friends jumping off the bleachers and we were like one two three… showing the fingers. And one of them said, "Are we supposed to jump on one or three?" And I said, "oh no you just talked in the middle of the video." [laughs] I thought maybe if we did the voices, it would be too recognizable.

This conversation between Haine Walker and I continued for another five minutes, during which he(she) asked a series of questions around hypothetical cases of what would be acceptable and what would not be in terms of content that could identify. Haine Walker never did post any videos on the site; nor did any of the participants, even after posting to a forum discussion on what would be acceptable video that met the content requirements for preserving confidentiality of participants, non-participants, and the school.

CONSTRAINING PERSONAL STYLE AND INQUIRY

The content requirements also constrained Ingrid DiCaprio from posting most of her photographic work. At the time, Ingrid DiCaprio was a Grade 12 student taking the Advanced Placement 2D-Portfolio Exam, and photography made up a substantial portion of her portfolio. She was also applying for post-secondary education to study

photography. In interviews, Ingrid DiCaprio talked at length about her artistic development of a personal style through portrait photography. Since the bulk of her work consisted of portraiture—images showing the faces of non-participants—she was restricted from pursuing what was an emerging direction in her artistic inquiry.

The same could be said for William S. Maugham, also an AP student who was applying for post-secondary education that involved photography. William S. Maugham's portfolio also consisted of mostly studio-based portraiture. Being unable to post artwork that depicted people, coupled with their time commitments preparing for post-secondary education, effectively disabled both Ingrid DiCaprio and William S. Maugham from fully participating in the weekly projects. They did however, post most of their existing artworks that met the confidentiality content requirements of the study.

JOHN FREEMAN

John Freeman was one of the first participants to sign up for participation in the project. He was the first to post a profile image and adopt a pseudonym, and even posted a blog entry expressing his excitement for this project. John, at the time of the study, was a Grade 12 student who was enrolled in two art courses: drawing and painting, taught by Mary Lou, and sculpture, taught by stormy. In initial interviews, John Freeman was questioned about his prior experience with social media, new media, and his online activity. John Freeman was able to describe an extensive knowledge of digital technologies, from being able to program Cascading Style Sheets to advanced digital video editing. He described himself and his friends as being quite active online, posting digital video and photography much more than was indicated by any of the other participants. John described his activity online, especially posting content, as being strongly linked to his social relations with his close group of friends in school. They would often perform, produce, and edit digital videos and photographs together, posting them online under each other's online user names on a rotating basis. When asked about the possibility of having a social network site as part of classroom content, John responded positively.

> **Mr. John Charles**: How would you feel about social networking sites specific for certain classes?
> **John Freeman**: I think that would be pretty interesting and I think it would be helpful for the actual class because I think it is something that you can go onto the site and maybe if they update with the actual content that was covered in that course say on a specific day and it will just be a lot easier… I

> don't know why but I personally think it is kind of cool to be in a group with your peers in a social networking site. I don't know why I think that but I just think that is kind of neat to have that.

In addition to having course content posted on a social network, John Freeman was attracted to the opportunity to interact with a group of peers on a school-related social network site. After posting his first and only blog post, John Freeman invited a number of his friends to join our social networking site. I explained to John over email that before I could allow them onto the site, I needed them to meet with Mary Ann, Lucy, or stormy to go through the assent and parental consent forms which then needed to be returned signed by a parent. My initial fear was that John Freeman was trying to invite friends from other schools, and without prior BREB approval, to enroll subjects outside of Oak Secondary. I felt this would risk participant confidentiality. I realized that his friends had no interest in participating when I observed John Freeman at school, trying to get his friends to come over to me in the art room with no success. After John Freeman's first blog post, he stopped participating on the site all together. When asked at the end of the study about the issue of anonymity, John Freeman expressed frustration at not being able to know who people were on the site.

> **Mr. John Charles**: How did you feel about being anonymous on the site?
> **John Freeman**: I think it's frustrating. Cause you don't know who everyone is, and if you ever get a friend invite, randomly it is really weird, because you don't know why they did and you don't know who they are and they know who you are. It was kind of like, I don't know it was kind of weird. I'd rather know who everyone was.
> **Mr. John Charles**: Why do you think that it is? What makes knowing who everyone is online better than not?
> **John Freeman**: Because even if you don't know them personally, you still know who they aren't… so you don't really have to wonder who that person is or not. Because if you know that person in real life you can kind of get where they are coming from when they take pictures. And it also … if you see their work, then you can use that to actually look at the person in real life and figure out stuff that you wouldn't see normally. I just like being able to see who did it. I think.

In John Freeman's response, I interpreted a need to link online and offline identities. In the first interview with John Freeman, he described that working and interacting with his friends, who were from school, constituted most of his time and activity online.

> **Mr. John Charles**: What if your friends did participate? Do you think you would participate?
> **John Freeman**: Yeah, probably, because I would be more interested in seeing what they'd put up because I know them in person.
> **Mr. John Charles**: Why do you think they didn't participate? You tried to invite them.
> **John Freeman**: Because... I am not really sure. I guess they didn't follow up on it, or they lost interest.

Regardless of why John Freeman's friends never signed up to participate in the study, it was a significant issue in why he did not participate beyond his one blog post. It seems that the characteristics of anonymity that elicited a positive response from some participants, where the same characteristics that dissuaded John Freeman. For him, having established social relations was important in his online activities. However, when asked whether or not he interacted with anyone online that he did not know, John Freeman confirmed that he did.

> **Mr. John Charles**: Do you interact with anybody you don't know in real life?
> **John Freeman**: Ah, some of them I don't know in real life. Some of them I just talk to on the Internet.
> **Mr. John Charles**: So what would you say is the difference between participating in this project and being anonymous here and being on say Instant Message interacting with someone you don't know.
> **John Freeman**: I guess in the project you don't really get to know the person that is doing it. You just get to see what they did. And you can't really connect to anything. You can't even put a face to the picture or even a personality.

Perhaps, with John, it was more a case of knowing the physical identities in school online, rather than of generally linking online and offline identities. When asked later on in the interview at the end of the study about recommendations for using social networking in schools, John suggested that this should be done with people who were already close, such as a whole class. In this study, however, participants came from a number of different grades and courses as an extra-curricular project. The suggestion that a group should be able to verify each other's online and offline identities as linked suggests that for John, social networking in schools should be an extension of social relations—whereas for participants like Gaelan and Haine, the online reshaping of the social relations in school actually enabled participation.

EVENING OUT THE PLAYING FIELD

Both of the teachers who were active participants, stormy and Lucy MaGee, expressed that the opportunity for them to be anonymous was a chance to “even out the playing field”, meaning that it was an opportunity for the teacher participants to interact with their students in new ways. The perception that students could not teach teachers appeared to be strongly engrained in the student participants, as none of them expressed anything that would suggest awareness that their teachers felt that they were learning every day from the students.

> **Mr. John Charles**: Have you ever taught your teachers something new?
> **Sophie Lee**: No I don’t think so. It is always the teachers that teach me stuff. And sometimes I am inspired by them. I am not sure if I have ever taught them something new.

stormy was already treating her classroom as a learning collective, seeing the opportunities for students to learn from each other in addition to from herself. She exhibited eagerness to engage a this project like this, where she could work alongside of the students as co-participant.

> **Mr. John Charles**: Have you ever had a student teach you something new?
> **stormy**: I do all the time. I just can’t think of any particular examples right now.
> **Mr. John Charles**: Well instead of an example, what would you do if you were in class and a student taught you something new. What would you do?
> **stormy**: I’d show the entire class. I’d say look what so and so just did. Then I’d ask the student first of course and I’d say would it be okay if I show everybody else. Usually that’s my response. It’s not usually one teacher with 30 students in theory we are able to teach each other like what you were talking about so and so showing so and so showing so and so showing so and so how to make these holes in the hats. And build on that idea. That’s why I like these groupings because the students are discussing and making things together and watching from each other and learning from each other.
> **Mr. John Charles**: Do you think there are any advantages to having anonymity as part of a virtual classroom like in this project?
> **stormy**: Yeah, I think that um it puts everyone on an even level. There is no, “I’m a teacher, you’re a student” that kind of intimidation or insecurity happening. Where as a kid might feel weird about giving a teacher advice on their photos or that sort of thing.

Lucy MaGee also sensed the possibility to relate to her students in a new way—one that placed her in relation with students as a co-participant. Both stormy and Lucy MaGee

seemed excited at the prospect of reshaping teacher-student relations. It was an opportunity for them to be able to make art and inquire alongside of their students, even if they did not know exactly who they were.

> **Mr. John Charles**: Have you ever taught your teachers something new?
> **Lucy MaGee**: Well because when I saw your presentation that you did in stormy's room it was something that look exciting and interesting. Interacting with the students and the students not knowing who their teachers are or if there were teachers were involved. But, I thought that was an interesting thing to even out the playing field.

RESHAPING SOCIAL RELATIONS

stormy and Lucy MaGee were enthusiastic about their new relationships. Student participants like Haine Walker and Gaelan Knoll were also enthusiastic that the perceived social relations that comes with being in school were being reshaped. However, none of the participants named teachers' judgment of their art as part of their anxieties around production and display. I interpreted from interviews that these anxieties stemmed more from social relationships with other students.

> **Mr. John Charles**: Do you think social status could say develop on our site around the identities that were created?
> **Haine Walker**: Yeah… It could build up. Some people may be like, "oh your pictures are so good" or this person only loaded up one picture or something and that could make their social status go up or down. But I think it is better than at school because at school there is a lot of social status.
> **Mr. John Charles**: Do you think being anonymous helped that [posting all of the images that he(she) did]?
> **Haine Walker**: Oh Yeah! Because I was thinking about all the people doing this. If we actually knew who we were, would we actually talk to each other? Because in high school there is like a social status and grade difference. And no one really talks to everyone unless we were friends with them. I heard that lots of different people are doing this. So, I was thinking "wow" if we actually knew the people doing this we would probably stick to the people we would know.

Haine Walker was one of the younger participants in the study. In an earlier interview, I asked Haine Walker about his(her) posting of almost ninety images in the first week of the study.

> **Mr. John Charles**: I was wondering if you had any further thoughts about being anonymous on the site, how did it help you to create art?
> **Haine Walker**: It brought me confidence. For sure. Because if I knew who everyone was and they knew who I was, I would become self-conscious through everything. I would be like, “oh what is this person thinking if my art is not good” and if I idolize this person and what if they think my art is not good or something. Or, I look like a total idiot online. Right? Being anonymous brings up your courage and stuff so then I have enough courage to put out the art that I like without worrying about people saying “you’re so talented or something.” But I know people won’t say that here because the site is pretty cool... I have one more thing to add. You know how we have the anonymity and stuff. Because we are all anonymous, in my opinion, you know how in our world now for celebrity stuff is all social status, and that brings your popularity up. Since you’re anonymous there is not really social status what so ever. So basically everyone can treat everyone equally and there is more comfort that way. If there is no social status, the world would be less angst-y and stressed out, in my opinion.

Haine Walker’s intuitions about participants sticking with already established relationships was partially true in the case of this study. Early on, it was observed that initial interactions occurred between those who shared their identities with each other, such as Gaelan Knoll and Opti, or Mango Jello and Sophie Lee. These exclusive relationships and resulting interactions, however, did expand as participants interacted to include those relations in the social network site.

Haine Walker’s desire for an egalitarian community was tempered by the realization that social status could develop. For participants, being anonymous removed the perceived judgments that come from being positioned in certain social relations at school—especially if one is not in a position of power. Lucy MaGee described one of the advantages to being anonymous as encouraging students to share their artwork with each other more freely, without the fear of being judged.

> **Mr. John Charles**: Do you think being anonymous in a supplemental social network site would help in your classroom?
> **Lucy MaGee**: If everybody was anonymous to everybody but the student or to the teacher I think that would help kids open up a lot more and be less scared to show work and not feel like they might not be the best, just kind of do what they can do and take pride in that. And then there is a lot of kids that like the praise for their work and they would maybe feel that they weren’t getting acknowledgement from their peers in the way that they would want.

Lucy MaGee also acknowledged that anonymity could disable those students who have established an identity built around the praise of teachers and students just as easily as it could enable someone like Haine Walker to participate at the levels he(she) did. Those that did respond to anonymity on the site as enabling indicated that this was because of the perceived fear of judgment from others, not for what they do, but for who they are in their social relations at school.

Gaelan Knoll was able to reflexively identify how he(she) judged the work that was posted by participants she knew in light of her perceptions of their offline identities, and as a result tried to not link online and offline identities. Gaelan Knoll described how it was the removal of the fear of being judged in the offline world that enabled and attracted him(her) to being anonymous in this project.

> **Mr. John Charles**: How did being anonymous help you create art?
> **Gaelan Knoll**: I like being anonymous... like the people I know, like my friends and stuff they knew me based on who they knew I was. Some of my friends I know who they are on the site and I sort of find myself judging them. I am like “oh yeah.”
> **Mr. John Charles**: Oh you find yourself judging them?
> **Gaelan Knoll**: Yeah, so I don’t want them judging me the same way. I tried not to know who my friends were but sometimes they were obvious. I like being anonymous. It’s fun. You also feel like you can sort of be a … different person, sort of not completely different, but you get to say stuff and you don’t have to worry about people judging you in the same way. And back at school they are not like “oh that is that person who posted that comment”. Or “she talks funny online”. They won’t say that. You can say whatever you want. Basically, I guess I feel nervous having my art looked at, but I suppose since it's online it's a bit less scary. I feel like when people look at my art they won't be judging me, but my art.

Being anonymous in this place provided the occasion for new identities to be constructed; it was, as Gaelan Knoll suggests, not removed from the embodied experiences but provided a place to speak, act, and inquire through art without the perceived judgment of their position in social relations at school.

AUTHENTIC FEEDBACK

By not having the perceived social structures and the judgment that come from a position in relation to others, this place was also interpreted by participants as an opportunity for providing more authentic feedback. This interpretation is found in

participants' descriptions of feelings that the social network and anonymity enabled judgment of their artwork and not of who they were in school. In Chapter 5, Mango Jello described how she learned by having opportunities to encounter a variety of artworks from people she might not normally get to interact with. She continued that description by associating these opportunities with the ability to be anonymous on the site.

> **Mr. John Charles**: How do you like being anonymous on the site?
> **Mango Jello**: Being anonymous is really hard! But, I really like it, it gives me a chance to be someone else through my art with people not knowing who I am and people can say what they are really thinking. It was really weird at first cause especially the few people that I did know that were my friends. It was really hard to comment, because you can't really say anything about them like their name or anything. And then after a while I actually really liked it because no one except for your friends knows who you are and then they can give you feedback. They are not giving you feedback based on who you are. But just like your picture because they don't know you.
> **Mr. John Charles**: Do you feel like you are getting a more genuine response?
> **Mango Jello**: Sometimes, yeah.

Both Mango Jello and Gaelan Knoll described that being anonymous in our social network enabled having his(her) art judged on its own merits, not because it is linked to his(her) identity in school.

RESHAPING EXPECTATIONS

Teacher participants described the quality of art, inquiry, and ideas produced and posted to the social network as reshaping their expectations. Their expectations were so reshaped that it resulted in identity confusion. At one point, stormy suggested that I had created fictional identities of student participants because of the conceptual sophistication of images and ideas being produced and posted. Earlier, as described in the Week 6 project in Chapter 5, participants had been asked to post prompts and questions for the group to respond to. Lucy MaGee was surprised at the kinds of prompts and questions posted by the students, and described them as outside of the range of her expectations for her students' capabilities of thought. stormy was also very enthusiastic about the possibilities for her students to make art, but still retained certain expectation of her students' capabilities.

The day after the following interview, stormy suggested that I was Gaelan Knoll. This had been something she was convinced of until the end of the project, and until the site

was taken offline. In fact, Gaelan was one of stormy's most active students, staying after school and working alongside her on most afternoons.

As one of the most active teacher participants, stormy also had the opportunity to work with students that were in other courses, like photography.

> **Mr. John Charles**: What work [images] do you find is most fascinating to you?
> **stormy**: I find Gaelan Knoll has this real… I am convinced it is another teacher. But I don't know… (laughs) I am not sure. I don't know what other teachers there are. At first I thought it might have been James.... No, there's sophistication in the work that's coming out of this artist. And the comments are sophisticated and... they're simple… and well composed and thoughtful. Just sort of… most of them, almost all of them. There's something very artistic about all of them.
> **Mr. John Charles**: What prompts you to respond to someone's image?
> **stormy**: Well... if it's really good or if it is unique. That one [referring to Mango Jello's water image on the computer, Figure]. Those blew me away. Did you do those?
> **Mr. John Charles**: No, I didn't.
> **stormy**: No, because I know who Mango Jello is now...

Expectations of art students' capabilities are a tangled knot of intersecting beliefs, social, and cultural practices, entrenched throughout the spatiality of places of schooling. The social relations that teens perceive as being present in schools, and their position in these relations, can disable a whole range of possibilities for their engagement and participation. Yet, those same relations were just as important for the engagement and participation for students like John Freeman. What this suggests is that identity does play a significant role of learning art in school, and that social relations describing an identity can be shifted and reshaped through new and social media.

SUMMARY

Throughout this dissertation I have used metaphors of space, place, and landscape to describe and theorize a number of features in this research. They have also been used to describe what new media does, constraints that enable, and learning. What this chapter has articulated is that to discuss places of learning, especially in new and social media, identity has to be considered. I did not realize this insight until the descriptions and interpretation of the participants and their patterns of actions made it clear that

identity is interwoven with issues around space and place, especially in learning art through new and social media.

Identity is not a fixed or static object; instead, it is a place where overlapping, intersecting, and sometimes conflicting descriptions and interpretations result from social relations. In complexity terms, it is those discernible patterns of activity that can be distinguished from a background of descriptions. Where one identity starts and ends is not as clear-cut as a boundary drawn around something. Offline identities are bounded by the body; however, identity as a pattern of activity constitutes much more than the body. It is the body and the context the body is embedded and engaged with. We saw this as participants like Gaelan worked to conceal the link between his(her) online and offline identities by substituting the mobile phone in his(her) image, thus removing objects associated to him(her). The boundaries of what makes an identity an identity are porous, overlapping, intersecting, and sometimes conflicted, because it is less a thing and more a coherence through time. Given that complex dynamic systems are coupled with an environment and dynamic, meaning far-from-equilibrium through time, issues of identity are never as simple as a name, image, or signifier; they are contingent and interdependent on all of these factors.

Due to the content constraints on our social network, the place occasioned a reshaping of social relations, where new patterns of activity and flecks of identity were able to be performed and constructed. These new identities were in relation to a body, never disconnected; yet they reshaped existing relations and created new ones. For some participants, the perception they were no longer in the social relations at school enabled their participation, artistic inquiry, production, and dissemination of art. The student participants on our social network described a perception of being judged on the merits of their artwork and not on where they were positioned in social relations of school. While this was enabling for some, it was also disabling for those who either felt constrained by the content requirements or relied on having a familar network of relations already in place. Before making recommendations to institute a place in schools for identity play, performance, and construction so that those who perceive themselves as marginalized have a place in which they can participate, we also need to consider who could become newly marginalized.

More important to teaching and learning art through new and social media are those expectations that are jointly constructed and performed in the place of art curricula and

pedagogy. Why was it that some of the teacher participants mistook their students for what they equated with a professional practicing artist? Before rushing to judgment of the teacher participants and their expectations of students, we should consider more closely the tangled knot of social relations between teens, student perceptions of self, art curricula, cultural expectations of student art, teacher education, and art educational research. It is my belief, grounded in my own experiences as an art educator and the findings of this research, that it is a convergence of factors that constructs an identity of what a student should think and produce. Even though we have shrugged off the notion of fixed stages of development (Kindler & Darras, 1998), there still remains the traces of what school art (Efland, 1976) is and should be. The possibilities of new and social media are that it can become a third space (Wilson, 2008a) where both teachers and students can re-describe these entrenched identities and the expectations that go with them. In the next chapter I explore the identity of the collective knowledge system and its dynamic in art learning.

CHAPTER 8: VISUALIZING THE COLLECTIVE KNOWLEDGE SYSTEM

Throughout this dissertation I have used theorizations from complexity thinking to describe, analyze, and interpret learning art through new and social media. The purpose of this chapter is to visualize a dynamic system of collective ideas, in order to better understand learning art through new and social media. In Chapter 6 I touched on the dynamics of engaging with a collective knowledge system. A collective knowledge system is described as representations of knowing mediated through a dynamic relational system of texts, dialogues, and art posted to our social network. We know in the field of art education that students learn from each other by looking at each other's art (Hagaman, 1990; James, 1996, 1997; Kakas, 1991; Wilson, 1976, 2004). The medium of a social network enables a tracing of activity that is qualitatively different from what is possible in physical spaces. From tracing flecks of activity and production, we are able to visualize new metaphors for the shape and dynamics that might be at play in learning art through engaging with a collective knowledge system online. This chapter specifically examines learning at the collective level through a series of *infographic* data visualizations.

NEW METAPHORS FOR KNOWING AND LEARNING ART ONLINE

Knowing, learning, and teaching through new and social media does close possible encounters and engagements while opening up new possibilities for artistic inquiry. In Chapters 5 through 7, I have explored how many of those constraints can both disable and enable participation and learning art through new and social media. To better understand these dynamics, I have used understandings from complexity thinking. I have argued that learning operates at multiple interdependent scales. It is at the scale of the collective this chapter focuses.

Educational research has presented certain metaphors and images to represent knowing and learning. Davis and Sumara (2005) stated that our entrenched metaphors of knowing "are caught up in complex webs of association, tangled metaphors and forgotten referents" (p. 306-307). Davis and Sumara (2005) also highlighted how words such as *plain*, *right, rule, standard,* and *normal* are the *shapes* of a linear Euclidean geometry. In a recent article on teaching creativity, imagination, and artistic inquiry, Heid (2008) stated: "[a]rt teachers can *press* students to generate many original ideas" (p. 43). The roots of the word *press* comes from the old French *preser,* meaning "to strike". This example is used to point out a linear causality at work in our metaphors of artistic

inquiry, knowing, learning, and teaching of art. When I think of pressing, what comes to mind is buttons on the elevator that takes me to the floor I want to go. To press is to exert a continual force on another body to move it, to cause something to happen. We see a linear understanding of teaching here, as *causing* creativity and learning by pressing. Teachers are complicit in learning, not the *cause* of learning (Davis, 2004). I understand learning, as I am sure Heid does, as dependent on a myriad of factors. However, our images and metaphors for teaching are tangled up in whole webs of associations around linear understandings of causality.

As I have described throughout this study, I have designed occasions for learning through artistic inquiry and the curricular design. However, I cannot make any direct, linear claims for having caused a specific instance of learning. That is, I cannot account for, nor could I have predicted, the learning that took place through this study. Chapter 6 illustrated, through the descriptions of how participants interpreted their own learning, that linear metaphors of teaching and learning through new and social media come up short.

Throughout this dissertation I have used nonlinear metaphors for knowing, learning, and teaching through new and social media. One of the more important ones has been the interrelationship between individual artistic inquirers and our collective knowledge system given form through the medium of our social network. The purpose of this chapter is to provide an interpretive visualization of what this collective knowledge system looks like.

If linear metaphors are drawn from Euclidian geometry, then metaphors to describe the shape of complex systems can be derived from fractal geometry (Davis & Sumara, 2005). Fractals “are generated through recursive processes—in contrast to Euclidian forms, which are built up through linear sequences of operations” (ibid., p. 309). This is a process that gives rise to qualitatively new and different forms. At each scale as an observer zooms in or out, as seen in the examples in Chapter 3, detail is distinct. Each scale of phenomena is irreducible to another, meaning that the shape of what knowing and learning look like at one scale cannot fully describe learning at another. We can look at the artworks of individual students and understand learning in the relationships between artworks, but how can we visualize the knowledge of a collective?

Complexity thinking, as a transphenomenal discourse, understands learning to be possible across scales of phenomena. Individuals in our social network learned, as did our collective knowledge system. It formed an interrelationship that occasioned a nonlinear causal influence, where our actions, inquiry, and ideas shaped the collective knowledge system as it looped back into our artistic inquiry (Juarrero, 1999). Our collective knowledge system was a structuring, structured structure, meaning that it was continually being shaped through our activity, developing a history of changes and adaptations, and yet maintaining a characteristic coherence and identity.

The medium of our social network was shaped by our activity, from posting comments to viewing images. This made it possible to trace a history of interactions, and to make visualizations of the relationships in our collective knowledge system. For example, views were tracked with images and activity. The more views an image received, the more it would be seen. An image that received a comment would show up in the Recent Activity section of the Main Page. The actions of many individuals clicking, scrolling, looking, posting images, and commenting, taught the collective knowing system what was important.

Networks has been used as a metaphor to describe how we come to create meaning and understanding (Lakoff & Johnson 1999). Meaning and understanding are never self-evident; rather, they exist in relation (Cilliers, 1998; Derrida, 1982). Our associations and relations are how we build cohesive understandings of the world. The dynamics of these network metaphor structures for complex systems can be best described as decentralized. Decentralized networks have a few well connected hubs, and links to these hubs are based on preferential attachment (Barabási's, 2003; Watts, 2003). Again, the Internet has been described as a decentralized scale-free network, which grows in a *rich-get-richer* fashion (Barabási & Albert, 1999). Web sites with more links get more links in proportion to their already established ones. The dynamics of preferential attachment, in which ideas or people receive proportionately more associations, are based on the associations they already have (Watts, 2003). Students in art learn from each other, looking to each other for cues and inspiration. This metaphor offers an image of a shape and dynamics that can describe learning through new and social media in relation to a collective knowledge system.

METHOD

> Whether you use a story, create a film, employ a diagram, or construct a chart, what such tools have in common is the purpose of illuminating rather than obscuring the message. One reason for selecting one tool rather than another is because it does the job that you want done better than the others. What kind of jobs need to be done? (Eisner, 1997, p. 8)

Eisner asked this question in the context of making a case for alternate forms of data representation. His purposes for expanding forms of data representation were for "deepening meaning, expanding awareness, and enlarging understanding" in qualitative research (Eisner, 1997, p. 5). The series of visualizations presented in this chapter give a shape to an interpretation of what our collective knowledge system *looked like*. The job that needed to be done here was not a statistical analysis, because this study was not designed for this, and although centered around art education and shaped by contemporary new media art, it was also not an arts-based education research study. What follows, then, is representative of Eisner's call for alternate forms of data representation. It is a creative play with visual form and data collected from our social network site. Inspired by contemporary artists who are giving form to numbers, percentages, and proportions, these *infographics* are a way to represent complex data quickly and clearly. Ultimately, the purpose is to begin offering new metaphors and images for understanding the interrelationships between individuals and the shape of a collective knowledge system.

Starting in 1995, artists Vitaly Komar and Alexander Melamid polled visitors to their Web page, asking what their most desirable painting would look like. The project, entitled *The Most Wanted Painting on the Web,* was the artists' playful interpretation of percentages and proportions of polling data. The series of paintings depicted what a country's favorite painting would look like, based on the professional market research survey used. From the percentages generated from the poll, they created painted interpretations of the data (Figure 8.1). Michael Govan (1995), Director of the Dia Center for the Art which co-sponsored the project, stated:

> Komar and Melamid's project poses relevant questions that an art-interested public, and society in general often fail to ask: What would art look like if it were to please the greatest number of people? Or conversely: What kind of

culture is produced by a society that lives and governs itself by opinion polls? (¶ 3)

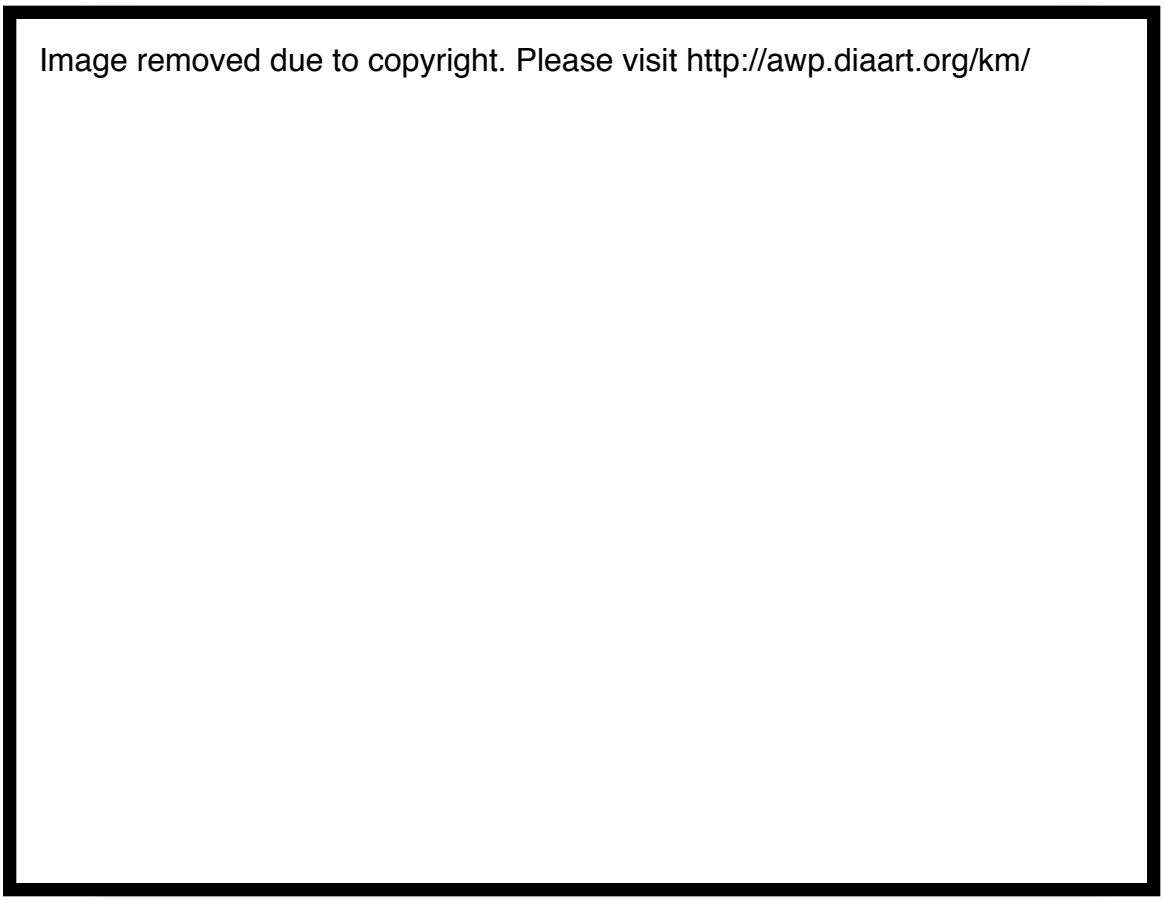


Figure 8.1 United States: Most Wanted Painting.

Komar and Melamid's paintings raised a number of questions around how the survey was conducted, what questions were asked, and how the artists interpreted the data. In letters to the artists' Web site, survey participants expressed frustration with the kinds of questions being asked. For example:

> **Results**
> Interesting project, but the survey is constructed so that you will always get the answers that support whatever thesis you have already formultated [sic]. There is no room for points of view you have not already formulated. Remember Wittgenstein "I do not know what I do not know" Until that is taken

> into consideration, the survey will be nothing but a clever parlor trick. That may be your intention.
> John
>
> *K&M: Actually the survey results from our initial poll (USA) contradicted our original thesis, which was that the US population would be diverse in its taste.* (Komar & Melmid, 1995, ¶ 1)

In another response, Komar and Melamid discussed the market survey's "objective" methodology as anything but objective. Instead, they treated the survey as a tool, stating "[t]he results they gave us we used as a tool, the same we use a brush. Any complaints about the tool, please refer to the manufacturers" (Komar & Melmid, 1995, ¶ 2). In these responses we get a glimpse of the artists' intent; however, in the following emails they were quick to contradict themselves, not being willing to outright state that the point of their art was to make a clear point about opinion polls.

> **In this case, the tool *is* the piece.**
> In one of your responses to someone criticizing the content of the survey (criticisms with which I entirely agree) you said, to paraphrase, that you used the survey as a tool, just as a brush is a tool, and if we didn't like the tool we should complain to the manufacturer, not you. This is a ridiculous position. For an artist to disclaim responsibility for defects in his or her work because they chose the wrong tool which to accomplish it is disingenuous, at best. Especially in a case such as this, where the tool *is* the piece. Had you made it clear that the point of the piece was to criticize exactly the sort of "objective" market-research propaganda machinery of which your survey is such an excellent example, then your piece might have had some merit. However, you specifically disavow any such intent and continue to present the survey as if it were, in fact, of any worth at all in gathering meaningful data on people's taste in art.
> Kirk
>
> *K & M: Very few things are one-sided. The painting is meant to bring up many issues that need to be addressed, as well as to make new and positive discoveries. Of course market-research isn't objective, but it is a fact of life.* (Komar & Melmid, 1995, ¶ 8)

The importance of leaving open ambiguity is illuminating and not obscuring what the artists are up to. By creating these sorts of tensions in the participants of the survey and in the viewers of the paintings, the artists were illuminating the very framework in which we construct truths, ideas, and opinions in our contemporary society. Komar and

Melamid's paintings teeter on the brink of becoming a one-liner through making a *clear point.* However, through this playful ambiguity, the artists created an interval to reshape our relations to ideas about what we interpret as truth, and to whether those methods can be applied to art. They challenged our society's acceptance of the types of polling and market research that they use, but they were also raising larger questions of how knowledge is formed, described, and disseminated.

My purpose in describing Komar and Melamid's paintings is to highlight the subjectivities at play in the infographics that are created in response to numerical data. Like the text of this dissertation, it is an interpretation of data recorded from our activity, a trace of numbers and percentages. Presented as such, it would give the impression that this was somehow a statistical study of power-law distributions and participation rates. This is not my intent. The purpose of the infographics is merely to illustrate and point toward new metaphors and interpretive possibilities, as did Komar and Melamid's paintings.

INFOGRAPHICS

Information graphics, or infographics for short, are visual representations of information. Examples include subway and road maps, street signs, lists, bar charts, organization charts, weather graphics, and so on. They can be sophisticated depictions of statistical studies, or more abstract and playful interpretations of content. Newspapers and magazines like *USA Today* and *Time* use colorful infographics to visualize complex ideas and data (Tufte, 1997). With more and more numerical data becoming available through new and social media, there is an increasing need to be able to understand data with visuals. The need for data visualization has even led to the creation of the United States National Visualization and Analytics Center (NVAC) under the Department of Homeland Security. Created after the September 11th attacks, NVAC's mission is to synthesize large amounts of data in order to analyze and interpret possible terrorist threats (Thomas & Cook, 2005). Infographics are also being used by artists to interpret large amounts of numerical data. Every year since 2004, artist Jess Bachman has taken the United States' annual budget and created a data visualization entitled *Death and Taxes* (Figure 8.2).

Image removed due to copyright. Please visit http://www.wallstats.com/deathandtaxes/

Figure 8.2 Death and Taxes. (Bachman, 2009)

His method for creating this infographic involves adding up the total budget and then, using simple calculation, creating percentages for each department and budget line. With these percentages he creates a proportional representation of what is spent where in relation to the other departments. Size relationships create the meaning in works like *Death and Taxes*, much in the same ways as Komar and Melamid's *The Most Wanted Paintings on the Web*. Here again we see the body's role in understanding information, as relationships between things, such as large and small quantities, create meaning. Earlier, I discussed Paul Cilliers's (1998) ideas about the relationship between complexity thinking and networks of meaning. Meaning in language arises in relation. In an infographic, meaning arises in the size, relationships, and proportions of visual forms and what they represent.

This visualization technique is also incorporated in software applications that create tag clouds. Tag clouds are visualizations of word frequency: the number of times a word appears in a text. The greater the occurrence of a word, the larger and darker the word is represented in proportion to the total amount of words. This provides an opportunity to

"see" a text visually through spatial and color-tone relationships. Using Daniel Steinbock's online software, TagCrowd (www.tagcrowd.com), I created a tag cloud of this dissertation's text (Figure 8.3). Common words like 'that,' 'the,' and 'a' are excluded from tag clouds to represent those words that are most descriptive of a text.

Figure 8.3 Tag Cloud Of Dissertation Text

PROCESS

Infographics are used here to represent interpretations of a collection of view counts, images, and themes. The series of infographics is stylized to suggest metaphors of the *shape* of our collective knowledge system as a network. I have illustrated two sets of infographics. The first is a set that illustrates, through network metaphors, relationships between individual participants by visualizing view counts, idea link associations, and who received the most responses in Weeks 5 and 6. The second examines the collective ideas and proportions of idea occurrences in relationship to each other throughout the project. I have chosen a series of topologies to illustrate the often overlapping, dynamic, and sometimes contradicting qualities of networks. Speaking to this idea, Galloway and Thacker (2007) stated:

> For example, a merely "technical" description of the topology of the Internet might describe it as distributed (for example, in the case of peer-to-peer file-sharing networks based on the Gnutella model, or in the routing technologies of the Internet protocol). But it is impossible to disassociate this technical topology from its motive, use, and regulation, which also make it a social topology of a different form (file-sharing communities), and economic

> topology with a still different form (distribution of commodities), and even a legal one (digital copyright). All of these networks coexist, and sometimes conflict with each other, as the controversy surrounding file sharing has shown. (p. 34)

As Galloway and Thacker (2007) suggest, there were many topologies of networks at play, each operating at different scales, yet each interrelated, co-specifying, and sometimes conflicting. Different selections of data yielded different interpretations. For example, in Figure 8.4 the idea-link network shows a high number of links to me, as I was the designer of the weekly constraints. However, in Figure 8.5, which illustrates the total views each participant received, I am not the participant with the most image views; in fact I am not even the second- or third-most views. These illustrate the varying and almost conflicting coexistence of differing visual interpretations present in complex dynamic systems. These infographics examine some of the relationships between stated links and participants, who received the most page views, and what themes were represented in the images posted.

The process for determining sizes and proportions for nodes was relatively straightforward. For example, in Figure 8.5 the total views a participant's images received were totaled. Then each participant was assigned a percentage according to how many views their images received out of the total of views. An 8- by 10-in. (20.3 cm by 25.4 cm) canvas size was created in a graphic design program. The canvas equaled 80 $in.^2$ (516.128 cm^2). Participants' profile images were then sized to a diameter proportionately equivalent to the percentage of the total area of the canvas. Each circle then was arranged, and all the circles resized simultaneously, to fit the canvas in a way that reflected their proportional relationship of views received. In Figure 8.4, links were added between participants when one named another participant or responded to them positively as an association in their idea development. In Figure 8.5, links were not added because it could not be determined who was viewing whom. In the thematic sets of data visualizations, links were added. For Weeks 1 and 4 the thickness of links were generic, but in Week 8 the links were altered to represent link strength. Link strength (as represented by thickness) was determined by the overlapping idea relationship. Images were often coded with more than one idea: for example, an image could be coded by the terms *sustainability*, *place*, and *macro photography*.

The first set of infographics illustrates the relations between participants (See Appendix C for profile images and pseudonyms of participants). Figure 8.4 is a network map of the

idea-links between participants. Every time a participant in an interview mentioned another participant specifically as inspiration, or responded to their artwork in either of the Week 5 or 6 projects, a link was established. I was given the highest number of links (18) due to participants' responding to the posted weekly projects. Since John Freeman did not respond to any of the weekly responses, nor was he mentioned, he was not assigned any links. The proportion of links determines the size of the participants' profile image. Figure 8.5 displays size proportionate to the total amount of image views a participant received throughout the project. The total number of images posted, and image views, accompanies each profile image. Links were not assigned because it could not be determined who was looking at whom. Figure 8.6 shows a similar design to Figure 8.5, illustrating the number of responses each participant received to his or her images or prompts from Weeks 5 and 6.

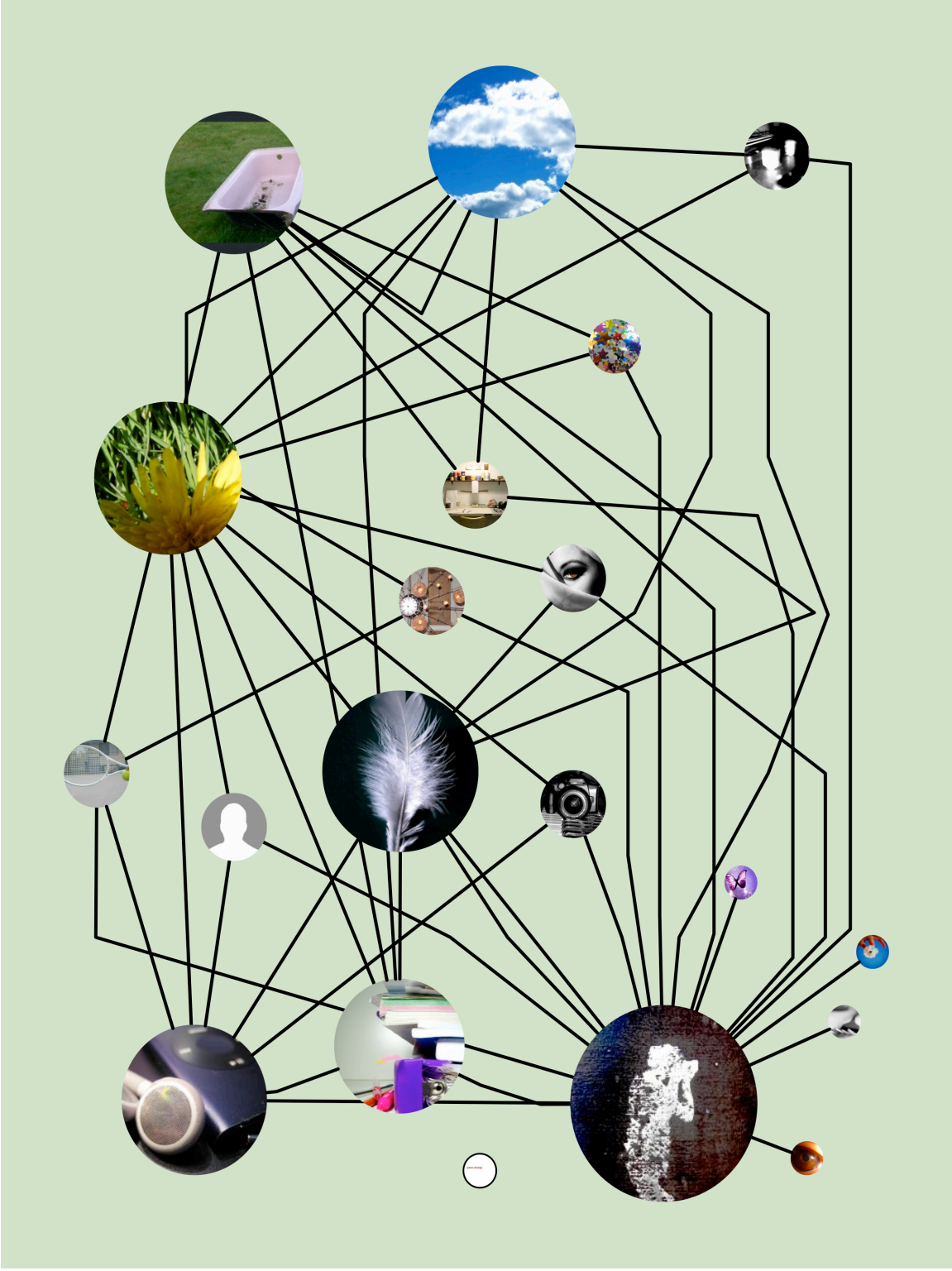


Figure 8.4 Network Map of Idea Links.

Figure 8.5. Image views per participant. Accompanying each profile image is a number that represents total images posted and total image views.

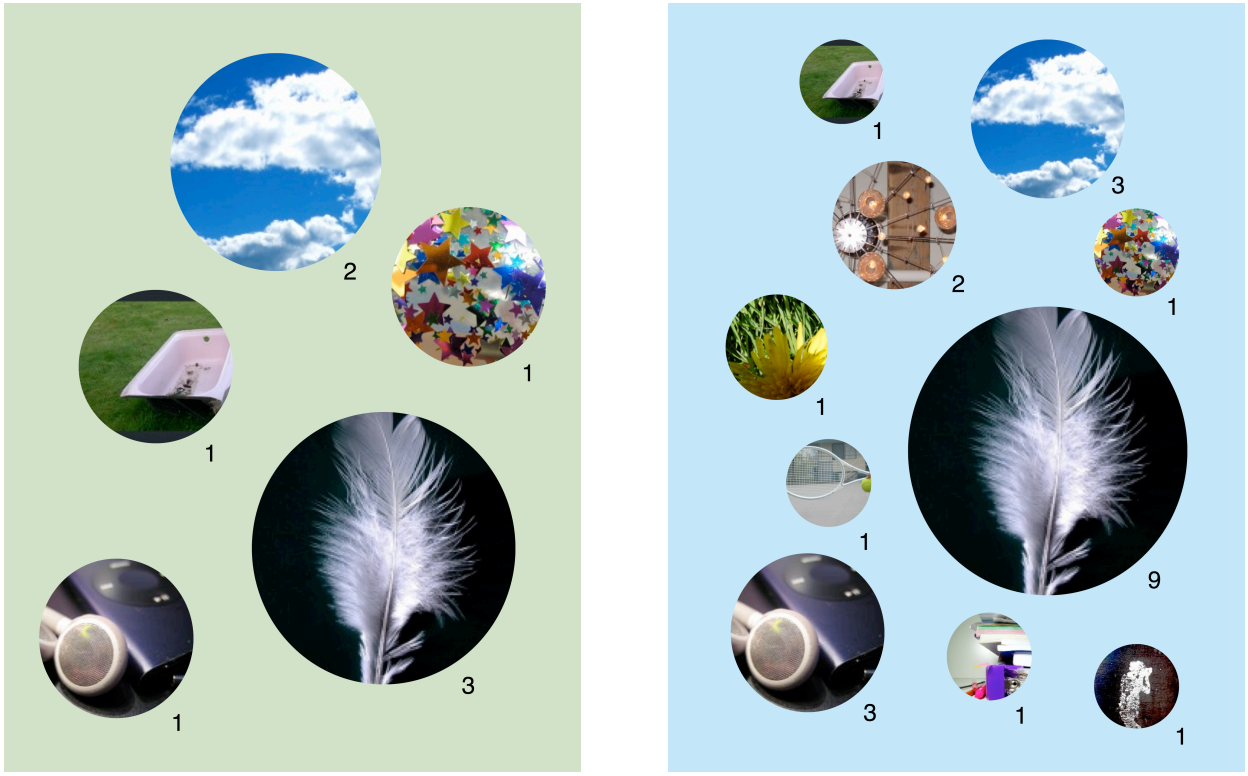


Figure 8.6. Weeks 5 And 6. Week 5 is on the left and Week 6 is on the right. Accompanying each profile image is the number of responses the participant received during each week to the images or prompt.

IDEA LINKS, VIEWS, AND RESPONSES

In this set of infographics, which illustrate participants' viewing and ideation relationships, I interpret two themes. The first is a difference between stated and observed idea links and associations and who was receiving the most views in Figures 8.4 and 8.5. The second is the number of associations and responses that Opti's ideas and images received from Week 5 to 6. The differences in Figures 8.4 and 8.5 illustrate a possible interpretation of some of the characteristics of learning through our social network. Figure 8.4, illustrates the many idea links that participants described throughout the curriculum. Idea links are important in that they characterize the decentralized qualities of working through new and social media. Again, decentralization does not mean I, as the teacher, am removed, because we see a high number of links to myself. Rather, decentralization describes there were many centers, or hubs, that were influencing learning on our social network. In Figure 8.5, this dynamic becomes more pronounced as Haine Walker, Sophie Lee, and Mango Jello became the most viewed participants on the site. Even participants like Opti and stormy, who posted a relatively small number of images, were receiving a high proportion number of views per image.

Another characteristic of decentralized networks is suggested in Figure 8.6. In Weeks 5 and 6, participants were asked to choose another participant's image or prompt and respond to it through artistic inquiry. In Week 5, I noticed that, for not posting many images, Opti was receiving the most attention in terms of his images being the starting point for artistic inquiry. In Week 6, participants were asked to post a question or prompt for other participants to use as the beginning for artistic inquiry. Again, Opti's ideas in that week received three times the amount of attention as he had received in the prior week. Also, keep in mind that all of the participants in the Week 6 illustrations who received one response was from my own inquiry, where I posted a response to every prompt. It is impossible to say mathematically if Opti was becoming a hub in the power law sense, but what can be seen is that for relatively few images, his ideas were attracting a significant amount of attention. This was partly the reasoning for designing the Week 7 constraint, in which participants were asked to go back into the collective knowledge system and reinterpret new possibilities.

Many participants already came into this study with a tacit understanding of the dynamics involved in gaining attention online. For instance, image views affected how participants encountered images and ideas on our social network. This feature resembles the ranking system of user-created content on social network sites like

deviantART or YouTube. For example, Jean Valjean viewed content almost exclusively based on the rating system of others. A video on YouTube that gets more views is more likely to be seen by a lot of other viewers and more likely to be ranked. Not all videos ranked with four stars will catch the attention of users like Jean Valjean; they also have to be viewed a lot of times to make it to YouTube's home page.

> **Mr. John Charles**: So when you go to YouTube do you ever make comments about people's videos? What would you say?
> **Jean Valjean**: Your video rocks or something like that.
> **Mr. John Charles**: Okay, cool. Do you ever say any other comments? Just a lot of praise and "good job?"
> **Jean Valjean**: I always look for those four stars. I only look for those ones.
> **Mr. John Charles**: So you avoid the one star ones?
> **Jean Valjean**: Yeah, most of the time.

Haine Walker intuitively understood this ranking system and its implications, especially for those in similar situations as himself(herself) in terms of how they are ranked.

> **Mr. John Charles**: On deviantART do you go and make comments on other people's work?
> **Haine Walker**: Yeah, there is also the front page, they have a section for the newest art that's been uploaded, the most popular and the prints and the daily deviations which are what the moderators and administrators say are really good.
> **Mr. John Charles**: Ok, what motivates you to post a comment to someone's art?
> **Haine Walker**: Normally when I search for stuff, I look at all the popular stuff first, I also look at the ones that get less views, some of the ones that get less views are really good and like maybe it is traditional and maybe the color is not so good. Ya, I do give feedback and say, maybe color lighter or something.
> **Mr. John Charles**: What draws you to looking at the work that has less views?
> **Haine Walker**: Well it is like, I don't get that many views either so why should I not look at other peoples because they don't get that many views, right?

Haine Walker understood that view ranking excludes content on the site deviantArt, and took an active position to seek out art and ideas not being looked at because he(she) is able to empathize with not getting as many page views. In effect, Haine understands that views begets views. In addition to viewing the most popularly ranked content, he(she) seeks out those images that have not received many views or comments in an effort to

distribute the amount of attention any one idea receives. Similarly, Gaelan Knoll looked to leave comments for those artworks on our social network that had no comments.

> **Mr. John Charles**: What prompts you to respond to someone else's image to write under someone's image, to leave a comment. Like what kind of image? What are you thinking? Why would you respond to one image and not another?
> **Gaelan Knoll**: Well some of them they really stand out. They are like really nice and you just want to pull something and some of them are nice but nobody has responded to them and you want to say something because you know they are nice and you just want to let the person know, yeah that they're nice, especially if there are no comments.

The function of social software to rank images and videos based on views is only one aspect of how a "hub" is made in social networking sites. There is also the quality of comments posted and who posts that is important. Google's search engine works through a page ranking algorithm measuring how many links are made to a Web page, which helps determine what rank a page receives—but that is not all. The algorithm also looks at which page is linking to the one being ranked so that if, out of a scale from one to 10, your page has 10 links from pages with a rank of two, it is less important, for example, if you have one link from a page with a rank of eight. It is the quality of the links and associations that are important—in other words, who is linking and associating with you.

In this study, certain ideas and associations were brought into our social network. It was not a blank slate, waiting to be filled with responses to my questions and prompts. As seen in the visualizations (Figure 8.7), our social network was very early on propagated with ideas and images that were not prompted by me or the curriculum; this persisted through the study. Watts (2003) stated: "the set of contexts in which each of us participates is an extremely important determinant of the network structure that we subsequently create" (p.115). Even though we were anonymous, some participants who shared strong social links with other participants shared their identities with each other early on in the study. Perhaps this was the difference in Week 1, where Milo Fishie's collage image received almost three times the amount of views, for what was essentially a similar image to Sophie Lee's image. The difference in the two images was not that one was particularly better than another, or even when the images were posted; Sophie Lee's was posted a day earlier. The reason why Milo Fishie's received comments when Sophie Lee's did not could have been because Milo Fishie had more friends on our

social network. It was a matter of comments begetting more comments. Gaelan Knoll was the first to respond to Milo Fishie. Gaelan Knoll, Milo Fishie, and Opti were part of an after school “Doodle Club.” Gaelan Knoll brought with him(her) a whole set of preexisting social associations may also have influenced who he(she) commented on. stormy’s response followed Gaelan Knoll’s. I also entered into the dialogue, reflecting afterwards that it was much easier to contribute to a conversation that had already begun than it was to try to start another one for a similar image. In the first few days of the project I noticed that many of the participants who had preexisting social associations outside of the project commented more frequently on each other’s images, even if the comments were “Nice! :D I like this one!” Images that receive comments end up in the Recent Activity feed on the Main Page, thus drawing more attention to the image for further comments.

COLLECTIVE KNOWLEDGE SYSTEM

The second set of infographics illustrated the relations between ideas in the collective knowledge system. Figure 8.7 is network maps of the ideas in Weeks 1 and 4. The links are placeholders. Not until Figure 8.8, which represents the collective theme relationships at the end of the project, do the link thicknesses represent the strength of links between ideas. There are seven general ideas represented in Figures 8.7 and 8.8. Each image posted could be assigned more than one idea coding if appropriate, and there were a total of 38 idea combinations represented. Figures 8.7 and 8.8 were attributed every instance of their code in any of the idea combinations. For example, if an image was coded ABE, where there was interpreted Consumer Culture, Happiness, and Place, then each general category would receive one count. Figure 8.9 represents all 38 idea combinations. Each image posted could be assigned more than one thematic coding if appropriate. Figure 8.10 represents the view count proportion for each idea, using the seven general categories.

IDEA CATEGORIES

I chose idea categories based on number of factors: how participants described their own images in the posted description accompanying the image or from interviews, and how other participants described the ideas and themes they perceived, either through posted comments or interviews.

Code	Category
A	Consumer Culture
B	Happiness
C	Macro or Looking Closely
D	Sustainability or Environmental Issues
E	Place
F	People or Relationships
G	Miscellaneous

Table 8.1 Idea Categories.

I chose seven idea categories: (a) consumer culture, (b) happiness, (c) macro or looking closely, (d) sustainability or environmental issues, (e) place, (f) people or relationships, and (g) miscellaneous. I chose consumer culture as a number of participants in the first few weeks mentioned this in discussions and image comments and descriptions. Of course, given the nature of the first four weekly prompts in response to the film *Euphoria*, happiness was a category. I would not consider macro, a term in photography that is either a setting or a lens that enables the ability for a camera focus closely, a idea category in and of itself; rather, the term *looking closely* is more appropriate. However, the fact that participants used the term so frequently to describe what an image was about justified its inclusion. I coupled sustainability with issues of the environment due to how it was invoked to both describe euphoria and then how it was used more to counter notions of happiness prescribed through consumer culture. Place was established due to the high number of images and interviews that described a place or space. People and relationships, like place, were noted as the subject of many images and this was directly related to the Week 3 project prompt. Miscellaneous images fell outside of the established categories, and did not show up enough to warrant the creation of a new category. An example would be one of Ricky Bobby's semi-abstract figure drawings. In many instances, I assigned multiple idea codes to a single image, thereby creating a number of sub-categories such as sustainability and place, or consumer culture and place.

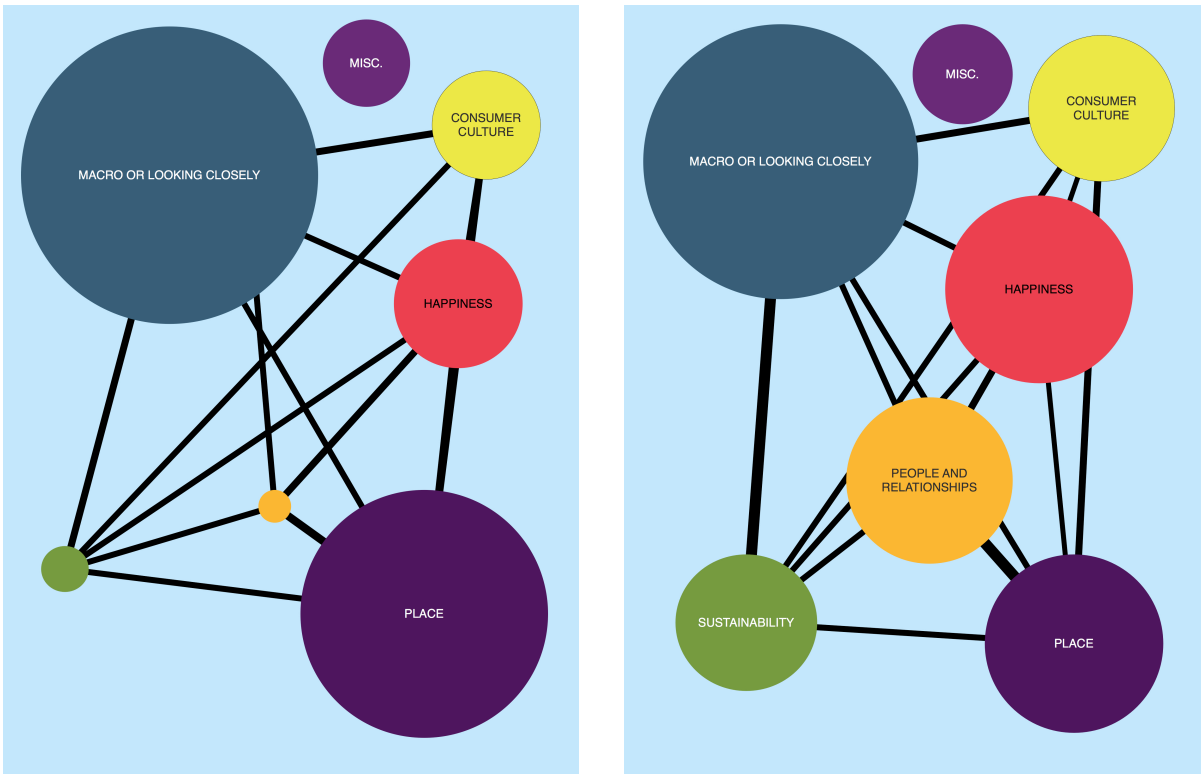


Figure 8.7. Network map of Weeks 1 and 4 ideas. Week 1 is on the left and Week 2 is on the right. In Week 1, the green and orange dots act as placeholders for sustainability, people and relationships. Their instances were so small that they could not be represented on the map accurately.

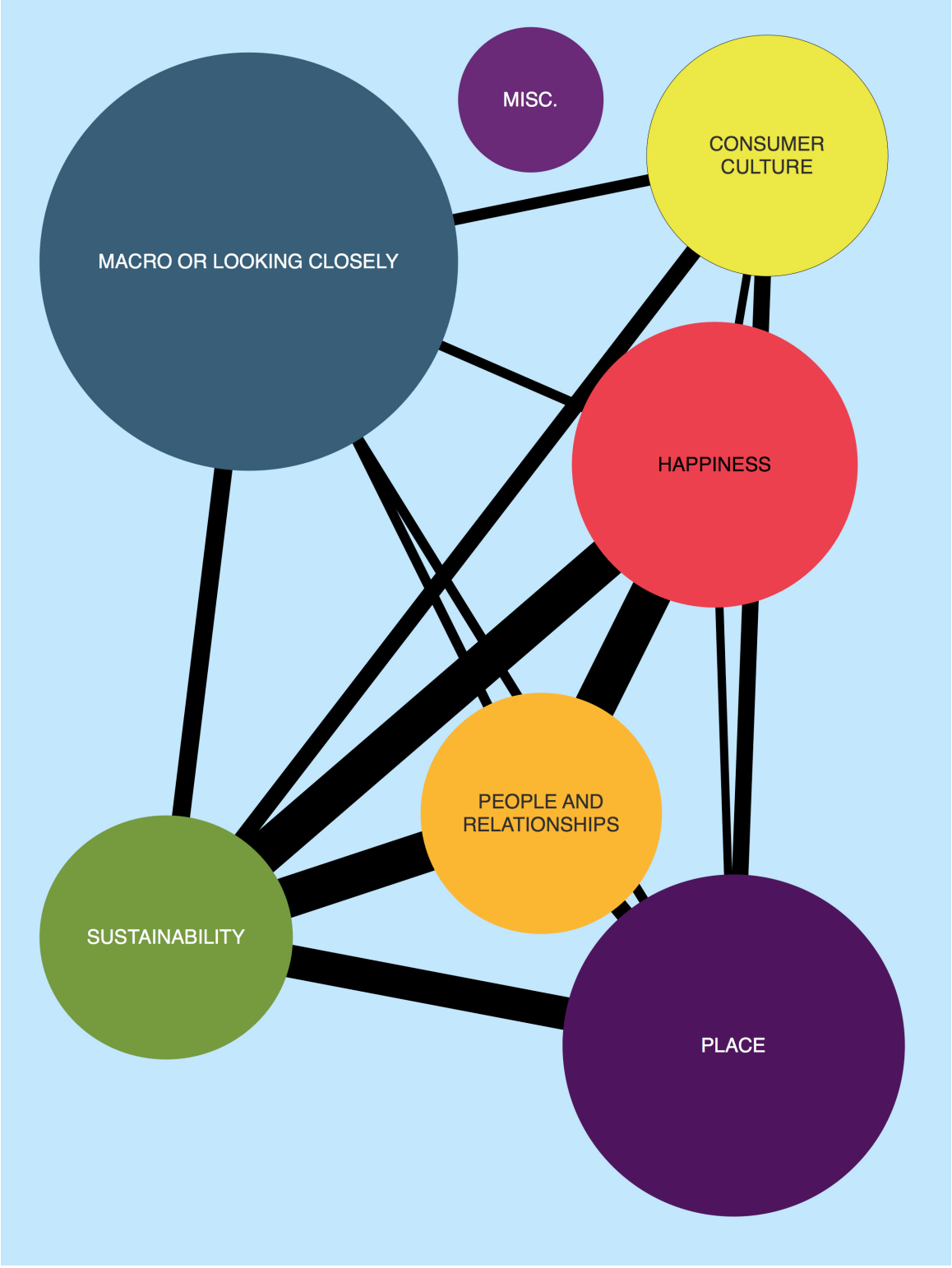


Figure 8.8. Network map of ideas, Week 8.

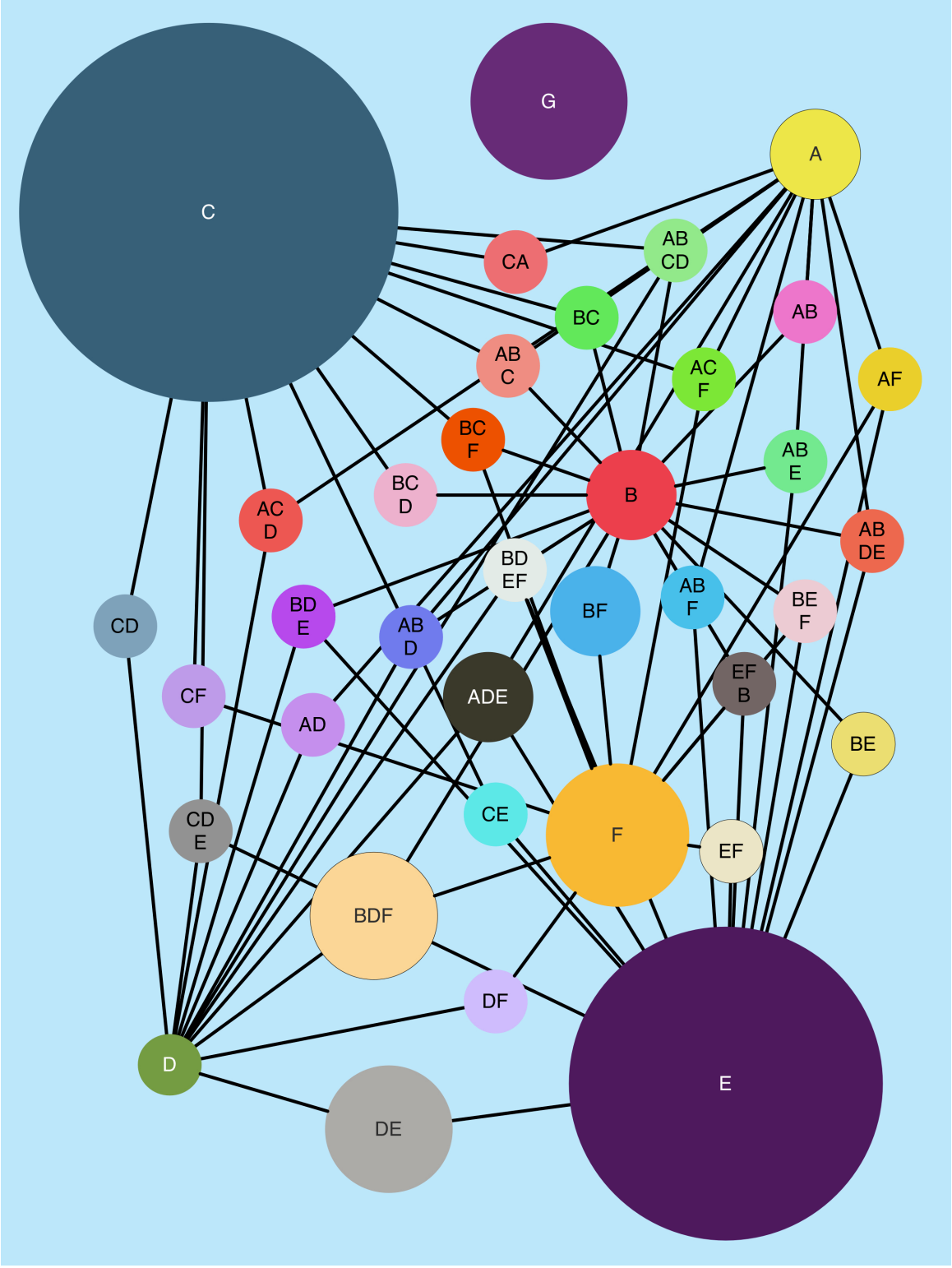


Figure 8.9. Network map of total idea combinations.

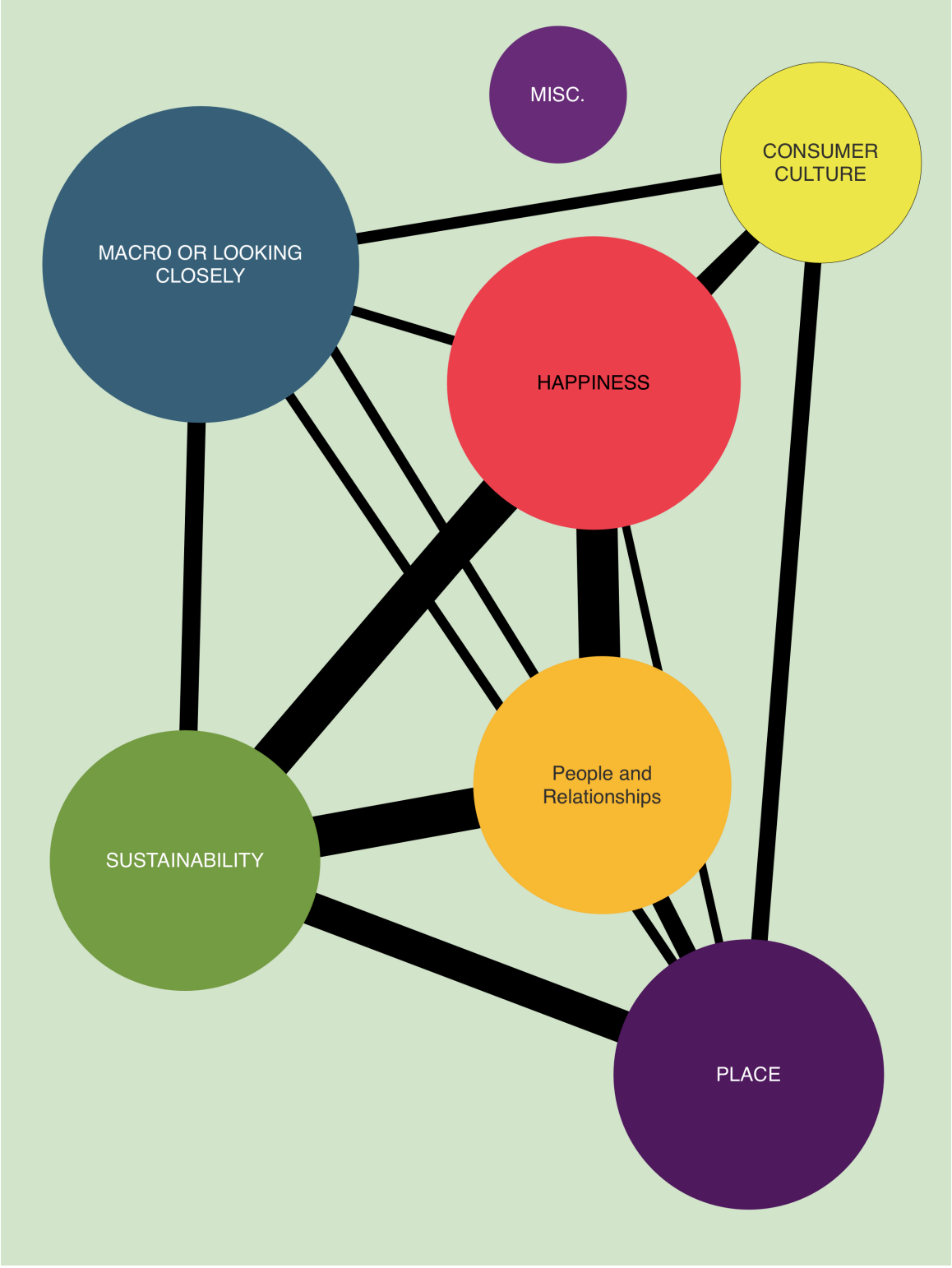


Figure 8.10. Network map of total views each idea received.

In the second set of infographics I interpret two features. First is the relative meta-stability of the idea growth throughout the eight-week curriculum. Second is how early propagation of the social network with images about looking closely and place established these ideas and maintained their growth throughout the study. As explored in Chapter 3, the identity of a complex dynamic system is a patterned coherence through time (Juarerro 2002). Figures 8.7 and 8.8 illustrate this dynamic, in that we can see a relatively stable growth through the curriculum. The ideas of sustainability, happiness, and consumer culture grew as our inquiry through the designed curriculum progressed. However, macro/looking closely and place continued to grow as well, in proportion to the other ideas. Granted, some of the idea categories overlap, and who is to say what is the difference between a photograph that can be characterized as *looking closely* and *place*? This is where Figure 8.9 is helpful in illustrating the fine-grained qualities of overlapping and intersecting themes. Additionally, Figure 8.10 offers another illustration of where the attention was oriented throughout the curriculum. Like the illustrations showing the difference between idea links and participants' views, Figures 8.8 and 8.10 present a different picture of which themes were getting the most views. Though there were a significantly higher proportion of *macro/looking closely* and *place*, the number of views distributes as the other ideas become more prominent and begin to overlap. If we were to create another figure illustrating the view percentage proportions for each thematic combination, we would see something almost exactly like Figure 8.9.

This set of infographics illustrates how the histories of interactions and relationships participants brought with them, their ideas, and their social links shaped our collective knowledge system. Early on in the curriculum in Week 1, participants began propagating the social network with images that had nothing to do with the prompts or questions. This was not requested nor barred; it was a behavior that seemed part of each individual participant's identity construction and performance. These individual acts, such as Haine Walker's posting of close to 90 images early on, Sophie Lee's and Mango Jello's posting of their portfolios of mostly macro photography, and Gaelan Knoll's posting of images of places, all contributed to the forming of a decentralized network of ideas and inquiry. We can see the difference the curriculum made from Week 1 to Week 4, yet it did not diminish these other ways of inquiry that participants brought with them. Their ideas and activities shaped the curriculum as much as the curriculum shaped them. Together, they gave rise to a collective knowledge system of ideas that was dynamic yet meta-stable.

Complex systems have a high degree of local fluctuation at the scale of individual inquiry, yet collectively have a discernible pattern of activity (Juarrero, 1999).

These interpretations raise the issue of control. Who controls the network, what causes learning, and who is responsible? In networked relations, there is no “one” controller. Rather, it is the topology of the network that causally influences participants in a network. The topology of our network of collective ideas is illustrated by this set of infographics. In it, we can observe causal influences, but not a centralized control, as the topology forms through the weekly projects. Galloway and Thacker (1997), stated that the “two-fold dynamic of network control—distributing agency while instantiating rigid rules—implies that subjects acting in distributed networks materialize and create protocols through their exercise of local agency” (p. 41). In their local knowledge and contributions, participants shaped the collective knowledge system—which dynamically looped back into our individual inquiry, further shaping it by confirming previous forms of inquiry and pointing to new possibilities for inquiry.

SUMMARY

Part of the purpose of this chapter was to represent new metaphors and visualizations of what a collective knowledge system could look like. As I have discussed the individual participants’ relations with a collective knowledge system through our social network, it was also important to describe what they were relating with. One of the advantages of learning and teaching art through new and social media are the traces that can be drawn from the flecks of activity online. This chapter presented a series of creative interpretations of data collected through the social network in the form of infographics. Infographics, made through human interpretation and computer software, are a way to understand large amounts of data in meaningful ways. One of the most common methods is through proportion and distribution to create meaningful relationships from the data. These relationships implicitly reference the body’s ability to judge size, quantity, and distance. From these infographics, I offered a series of interpretations through the illustrations. In the first set of infographics, I interpreted a difference in stated idea links and image views, meaning that even though I had designed and enacted a curriculum, it did not mean that all eyes were watching me. We know that students are looking to each other for ideas and cues in the art classroom. These infographics give one possible interpretation of the shape and dynamics of who is viewing whom online. The second set of infographics represented another interpretation of the ideas in the collective knowledge system. What I interpreted in this set was a relatively meta-stable collective

identity that was established early on in the study. The shape of the network was determined not only by the designed curriculum, but also by the participants' history of artistic inquiry. This history was enacted in the social network by posting previously made images or images of personal inquiry. What is also interpreted is that control in these kinds of networks is two-fold: individual local action shapes the collective's network topology, which loops back into individual local action. It is a nonlinear causal influence that characterizes complex systems. It needs to be emphasized that the structure of dynamic complex systems is not inherently democratic and egalitarian, a claim that has been made many times about the Internet. What research about scale-free networks has shown is that their dynamics can evolve to be quite hegemonic. That ideas and systems can grow exponentially should give us pause, as educators, to consider both our responsibility and the ease with which certain ideas, trends, styles, and themes may spread and take hold when learning and teaching art through new and social media. This insight asks us to consider who and what are the hubs, those ideas and personalities that are associated and linked to in through new and social media? The hubs of a dynamic scale-free network offer a metaphor for understanding the organization and structure of how knowing and learning happens not only among individuals, but also in the collective knowledge system.

The structure of scale-free networks is decentralized, wherein the dynamics of a network change and grow according to the shifting and changing relationships between nodes—especially in the formation of hubs. Decentralized is a term that is often used to describe how art classrooms could be made by teachers to be more democratic. It is not a matter of the teacher getting out of the way of the students in an effort to make a complex knowing and knowledge system. It is that the role of the art teacher, as decentralized, is still a hub, one of many centers in a network of relations, active at making and building associations between students, teachers and ideas. It is, as I have described, to function as a consciousness of the collective, pointing toward possibilities in the landscape while also being aware of those ideas and participants that are gaining links and growing in significance. What if, for instance, the idea of macro and looking closely was something far more damaging, like classifying a race or culture in harmful ways? What if this were a hub in which participants were organizing their thinking around? Or what if, through our examples and histories of art that are used in our curricula, we create an idea-hub that artists are only male and of white European descent? Being aware of those ideas which our students structure their thinking around, and associate with, seems to be of utmost importance. The Week 7 project offered a way to have the collective begin building new

links and associations to those ideas already present, but not yet acknowledged. Teaching democratically through new and social media is not just about dismantling hegemonic ideas, liberating our students, and getting out of the way, but also about enacting constraints that ask for a reexamination, reevaluation, and a building of new links and associations with those marginalized ideas, beliefs, cultures, genders, and so on. Embodied in the collective is a depth of possibilities waiting for the occasion to be realized. Teachers can create those occasions.

The advantages of knowing, learning, and teaching art through new and social media is that it offers opportunities to trace those associations of ideas and relations that affect learning and artistic inquiry at multiple scales. This chapter has illustrated some potentials for visualizing how a collective's ideas form and evolve. It also offers an expanding metaphor for understanding how students look to each other for ideas and inspiration through new and social media.

CHAPTER 9: CONCLUSION

> **Mr. John Charles**: How did you like the projects as a whole? Were they different or similar to what you would do in school?
> **Jean Valjean**: They were different.
> **Mr. John Charles**: Yeah?
> **Jean Valjean**: In school we would have something like, “do this.” You don’t need to think a lot about what you are doing, deeply, cause there’s this small criteria and literally people are doing the same thing. But in this it really makes you think. Why are you doing it? What’s important to you? What’s important to other people?

In this dissertation, I have charted one possibility of what Wilson has described as a third pedagogical space. New and social media form spaces in which teens know and learn and that are outside of schooling. This designed and enacted curriculum and pedagogy was not a typical structured art education experience, as evidenced in Jean Valjean’s interview, nor was it outside of schooling, but in-between. It was a space where both adults and teens could inquire through art collaboratively. Wilson (2008a) stated that “if we researchers were to spend more time living in and investigating the third pedagogical site we might discover the many extraordinary ways in which to make art education truly change individuals’ lives” (p. 129). I would take this statement further and suggest that art education in such third spaces can change not only the lives of individuals but also the ways in which inquirers through art gather, assemble, and form as a collective (Latour, 2005).

Earlier, I discussed how new and social media is not taken up by teens for the sake of new digital technologies, but rather because it has become a way to relate to each other in networked publics (boyd, 2008). These networked social spaces overlap and permeate places of schooling; hence the importance of this research in art education. It is in these spaces, which are thoroughly visual and can support artistic inquiry, that this research has inquired. In these kinds of new and social media spaces art educators can subvert the drive for standardization and ask students “what they care about” (Delacruz, 2008, p.12). This dissertation asked what new technologies can do for art education *and* how we can best explore ideas through them (Carpenter & Taylor, 2003). More specifically it asked: What insights into knowing, learning, and teaching art can be offered from an inquiry-based art curricula and pedagogy, through new and social media, that draws from contemporary new media art and complexity thinking? It is from this

question that I organize this reflection and point towards a number of implications for knowing, learning, and teaching art through new and social media.

REFLECTION

In Chapter 2 I theorized how knowing and learning are reshaped through new media. New media expands and reshapes a landscape of possibilities, between the virtual and prior actual, by implicating the dynamic and affective body more, not less (Hansen, 2004). The reshaping of the spatiality of place is what distinguishes the kinds of art learning possible through new and social media (Ellsworth, 2004; Massumi, 2002). This theorization was described through artworks that have extendeded the knowing body into knowing bodies through a relational aesthetic (Bourriaud, 1998). The reason for doing this was to articulate possibilities for an art curricula and pedagogy, one that could meet the needs of learning and teaching art through new and social media. Contemporary art has been seen as offering future directions for creating spaces or artistic inquiry in art education (Adams, 2005; Gude, 2004, 2007; McKay, 2008; Sullivan, 1993; Walker, 2001, 2003; Wilson, 2003, 2008a, 2008b). Complementing and expanding these understandings of art curriculum and pedagogy, I articulated in Chapter 3 a broad understanding of complex dynamic systems, emergent phenomena, network architecture, complexity and identity, and constraints that enable landscapes of possibility. It was this framework that guided the educational design of the curriculum and shaped the analysis and interpretation of knowing, learning, and teaching art in this study.

Chapter 4 described this study's enactment of a design-based research (DBR) methodology. DBR was used to inquire into learning at the intersection of a contemporary new media art-inspired art curricula and pedagogy, complexity thinking in art education, and new and social media. This brought together the conceptualizations of curriculum and epistemology in Chapters 2 and 3. This chapter also addressed the epistemological and methodological tensions that arise when enacting certain aspects of DBR with complexity thinking. The sites of research and participants were presented, as were ethical tensions that arose with doing research online.

Chapter 5 served as a thick description, iterative analysis, and adaptation of the enacted educational design in this study. Using participant artworks, interviews, dialogue on the social network, and my observation notes, this chapter offered an account of not only the design but also the pedagogies enacted by participants, images, dialogues, and myself.

It was a conversation between evolving conjectures and an enacted design to articulate insights into features of the curriculum such as constraints that enabled, self-organization, and teaching as a consciousness of the collective.

In Chapter 6 I described, analyzed, and interpreted, based on participant's interviews, articulations of the experience of learning art through new and social media. Learning art through new and social media involved a qualitatively different experience of relationality, movement, and affect. These experiences are with and through a collective system of knowledge in which individuals are shaped by and shape through dynamic interdependent activity in a social network. From these insights I inferred that teaching art through new and social media enacts a teaching identity as co-participant. This identity is fluid and dynamic. Further, teaching art through new and social media is distributed, from encounters with images to the collective knowledge system.

Chapter 7 addressed the role of identity and participation in learning art online. Brought about by the confidentiality requirements of this study, identity construction and performance in new spaces of relation enabled a surprising reshaping of teacher participants' expectations and student participation. Conversely, this constraint also had a dissimilar affect on a number of participants. However, while some participants may have felt constrained by not having pre-existing social relations, others felt (albeit with some of their own pre-existing social relations) enabled by having a space to inquire, perform, and produce without the fear of being judged for their position in a set of social relations.

In Chapter 8 I represented an interpretation of the collective knowledge system through a series of infographics. Throughout the dissertation I referred to the causal influence that the collective knowledge system held as the topology of the network of relations between participants. These infographics provided the means to visualize the traces of interactions and activity that occurred throughout the curriculum. They suggest a possible interpretation, through metaphors of scale-free decentralized networks, of the dynamics of a collective's system of knowledge. What these specific interpretations suggest in this study was that through our social network both the curriculum and the participants' ideas reciprocally shaped the characteristics of our ideas and inquiry. The shape of the network was determined not only by the designed curriculum, but also by the participants' history of art-making. Our ideas and activities shaped the curriculum as much as the curriculum shaped us, which gave rise to a collective knowledge system of

ideas that was dynamic and yet meta-stable. Both this chapter and Chapter 5 point to the importance of initial conditions in shaping artistic inquiry through new and social media.

CONSIDERATIONS OF CONSTRAINTS AND LIMITATIONS

In the Preface, I described an invitation that I received from my former high school art students to a Facebook art group before beginning my doctoral studies. I can now see that that invitation was into a third-space pedagogy; my acceptance of it was rooted in deeply held beliefs about what art education is and should be. It is those same beliefs that have shaped the interpretive frame enacted in the form of this dissertation. The attraction to methodologies such as DBR was to be able to not only design curriculum but also to enact pedagogies. This also comes with a responsibility to describe those pedagogies. I have done so in Chapter 5, describing the intertwined characteristics of a contemporary and complex curriculum and pedagogy. There is no expectation that this research could ever be replicated perfectly. Complexity thinking has shown that each iteration of a complex phenomenon will result in fine-grained difference (Waldrop, 1992). However, instead of focusing an analysis on how the specific designs, descriptions, and interpretations of this study can produce predetermined outcomes that are fine-grained in other contexts, I propose that the reader should consider the conditions, constraints, interpretations, theorization, and analysis as an open work (Eco, 2006), a beginning for more questions, more inquiry, and more understandings as to the possibilities for knowing, learning, and teaching art through new media.

There were a number of constraints that created conditions for the emergence of certain phenomena. These include the constraints placed on the study by the Behavioral Review Ethical Board to restrict participants' artistic content in order to preserve confidentiality. Yet, this constraint enabled significant questions and understandings around the role of identity and participation in online environments. The time of year this study was enacted was also a constraint that affected the level of participation. The end of the curriculum corresponded with end of the school year, thereby constraining the ability of participants to fully contribute to the site. What ultimately needs to be considered throughout this dissertation is that constraints, which were specific to the context of the study, do yield broader patterns, understandings, insights, and questions.

One of the constraints not emphasized in this dissertation was the time it took to participate. Participation in this study did take time outside of classroom instruction. Mary

Lou, one of the teacher participants, only posted two images at the beginning of the project. She expressed deep regret for not being able to participate in activities such as these. When asked what held her back, she described a full professional life as head of Oak Secondary's art department, finishing a master's degree, and maintaining a professional career as a successful artist. The time needed to participate in this study was also the main deterrent for Ingrid DiCaprio and William S. Maugham, who were both busy preparing for post-secondary education. This raises a significant concern for the additional time commitment that any new and social media practice would bring to schools. Keep this in mind as I move to articulate implications for knowing, learning, and teaching art through new and social media.

IMPLICATIONS

The roots of the word *implication* are "to entwine", to "fold in". With the relationships between the ideas represented in this dissertation unloosened and traced, I move now to re-entwine and fold back together. Specifically, implications offered are described for knowing, learning, and teaching art through new and social media as drawn from this specific instance of research. Readers may choose to apply these insights onto other contexts; however, the articulations here will focus on art education, contemporary new media art, complexity thinking, and new and social media. I present these implications in two parts. The first discusses implications for knowing, learning, and teaching art through new and social media. And in response to the first, the second part discusses articulations for art curricula and pedagogies through new and social media.

KNOWING, LEARNING, AND TEACHING ART THROUGH NEW AND SOCIAL MEDIA

Knowing and learning art through new and social media is about encounters with a collective knowledge system. This much was obvious from interviews with participants who described how they learned. Learning was occasioned by encounters of difference. In this study, difference was experienced and enacted through the dissemination of artworks chosen by individual participants and the encounters with a collective's knowledge system in unexpected contexts. The act of encountering different interpretive possibilities though our social network considered by the participants to be learning. Participants described that by encountering the range of artworks posted, they learned that there was no right way to make images. Works of art were disseminated without the need for approval and participants had a sense of agency not only as producers but also as viewers. Learning acted as a disjunctive through encounters with different ideas, as moments that fall outside of our interpretive frames. When I speak of difference I am

describing the interpretive possibilities of knowing as represented in the art posted to our social network. Of course those works of art came from someone, someplace, and sometime, and reflected a cultural, social, economic, and gendered interpretive frame. However, the issue is not that difference is those classifications but that they were allowed to emerge and be a part of the collective knowledge system.

A diversity of interpretive possibilities is what makes a collective of individuals able to adapt, anticipate, and learn (Davis & Sumara, 2006). To enable the kinds of learning in art that are democratic, socially just, and heterogeneous, new and social media spaces have to allow room for participants to post as many artworks as they want and entertain ideas that are of concern to them. Not only does there have to be the room for participants to post artworks representing different ideas and interpretive frames, it needs to be supported. It means artworks that challenge us or that do not meet the "assignment" need to be acknowledged and even welcomed to enable a place for divergent, heterogeneous creative productions, which in many ways embody the ideals of a 21st century education that is democratic, innovative, and participatory (Willinsky, 2006).

There are certain dynamics of relations between individuals and their collective knowledge system. One of the advantages of learning and teaching art through new and social media is the way that traces that can be drawn from the flecks of activity online. Collective knowledge systems have been described as representations of knowing mediated through a dynamic relational system of texts, dialogues, and art posted to the social network. A collective knowledge system has certain characteristics in a social network. Relating with a collective knowledge system through new and social media involves affect, sensation, and movement. This quality of relationality emerges from the act of viewing, clicking, scrolling, and selecting art. Collective knowledge systems have distinct shapes that are dependent on the context, curriculum, and individual understandings.

If we are to occasion a space that is open to divergent and diverse ideas and interpretive frames, then we also need to attend to the dynamics of how ideas influence and shape the inquiry of a collective. Ideas can act as hubs, drawing attention in dynamic ways. These dynamics have been described in terms of scale-free decentralized networks, where hubs attract links and associations through preferential attachment. This means that if particular ideas or individuals begin to garner most of the attention, they are

proportionately more likely to continue gaining associations. This is where we, as art educators, act as a consciousness of the collective. What if those ideas become hubs that are harmful? This is where an art teacher is responsible to act.

The curriculum we design and enact in new and social media spaces will have to coexist with, and evolve into and through, the ideas that are introduced by our students. This embodies what Wilson (2008a) describes as a third space, where the ideas from students and teachers meet to become something more any one individual, teacher or student.

New and social media reshape social relations through identity construction, performance, and play. Though any encounters with new and social media are rooted in experiences of the body, it also extends the knowing body into new spaces. Identities online are patterns of activities that leave flecks, which can be traced and interpreted. The reshaping of identities online subsequently shifts and reshapes social relations. Where students see themselves positioned in social relations in school affects the kinds of inquiry and participation possible. When given an opportunity to reshape their social relations online through identity performance and play, students' landscape of possible action and artistic inquiry is expanded. Though there are risks of alienating those who depend on their embodied social relations online, I believe that there is enough room in new and social media spaces for this expansion to happen. What is important is that the expectations are jointly constructed and performed in art curricula and that pedagogy be examined and reconsidered. That is, in new and social mediated space, as art educators we need to consider more closely the tangled knot of social relations between teens, student perceptions of self, art curricula, cultural expectations of student art, teacher education, and art educational research. It is a convergence of factors, descriptions, interpretations, and actions that constructs an identity of what an art student should think and produce. The opportunity that new and social media present for learning art is the opportunity to reshape and unloosen these entrenched and tangled knots.

Teaching art through new and social media is not necessarily rooted in the identity of any one individual. The identities of art teacher through new and social media are reshaped. If the participants in this study attributed their learning more to encountering the works of each other than to anything I did, who was the teacher? The definition of teacher as a singular individual needs to be expanded to include students, images, objects, events, encounters, movement, sensation, affect, and so on.

ARTICULATING CURRICULA AND PEDAGOGIES FOR NEW AND SOCIAL MEDIA

The danger here is of seeing either of these two sets of implications as separate phenomena when, in fact, they were intertwined and complicit in each other. Instead they should be encountered together as they reference the qualities and characteristics of the events they came from in this study. The following discussion considers implications for art curricula and pedagogies for new and social media in relation to the previous insights and understandings.

Art curricula and pedagogies through new and social media should attend to the reshaping of interpretive frames of individuals in relation to themselves, others, and the more-than-human world. New and social media are experienced in asynchronous and open-ended contexts. For example, almost all of the participants described logging onto our social network from home. They also described their inquiry as taking place in familiar, local contexts—none of which were at school. Art curricula and pedagogies through new and social media should attend to these distributed, circulating, open-ended contexts in which individuals know and learn. Context-sensitive constraints, which can be in the form of prompts or questions, should occasion an opportunity to examine the interpretive frames enacted with encounters of the local. It is not enough to just report on a place; the opportunity for learning, not only for the collective but the individual, is gaining a new understanding of the familiar. By attending to both the local and how an individual encounters the local, more interpretive possibilities can emerge. Context-sensitive constraints can enable new interpretive possibilities for artistic inquiry in art education by occasioning a reshaping of existing interpretive framing of a landscape of possibilities. Constraints exist at many different scales and forms, not just in questions or prompts. It can reside in encounters with media or in a system of knowledge prompting a new way of relating to an everyday experience. Context-sensitive constraints take time. They are inefficient, nonlinear, and reference embodied histories and local knowledge opening up the possibility for divergent ideas to emerge.

Art curricula and pedagogies through new and social media should attend to the collective knowledge system as a source for artistic inquiry. A collective knowledge system is created through the interactions, postings, art, ideas, and activities through new and social media. The spatiality and place of learning, both at the individual and collective scales, is reshaped through new and social media. Spatially, relations between individuals and representations of knowing shift. Encounters through looking and dialogue are reshaped in the social network as dialogues are recorded and can be

referenced through time. Relations between representations of knowing are continually shifting, changing, and evolving through activity.

What if the knowledge that already exists in a collective were the support and starting point for new forms, ideas, and artistic inquiry? To conceptualize art curricula through the language of complexity thinking, we need to start considering the history of ideas and relations—as represented in a social network—as a source for new ideas and inquiry. Context-sensitive constraints can point individuals back into the diversity of ideas and interpretive frames for new elaborations of knowing.

The initial conditions, those ideas and relations, play a significant role in shaping the collective knowledge system. Related to the dynamics of scale-free decentralized networks and complex systems is the insight that initial conditions matter. This was seen in this study as participants propagated the social network site with images and ideas that persisted and grew throughout the study. The medium of a social network is inscribed by our activity and ideas, hence the importance of how a collective knowledge system is formed. Granted that short of deleting and censoring content, the collective knowledge system will take on a shape and characteristics all its own. Our curricula and pedagogies should then respond to this, by pointing out, organizing, commenting, and working to orient attentions towards new landscapes of possibility.

Teaching art through new and social media is more about acting as a co-participant and consciousness of the collective. Allowing and enabling learning through the collective knowledge system reshapes the role of the art teacher through new and social media. It affords art teachers the opportunity to become a co-participant in inquiry with their students. There is a fear that art teachers who inquire alongside of their students will inordinately shape the inquiry through examples of their art. But attention may be redistributed by social media due to its reshaping of identity roles and the ways in which participants engage with images and ideas. As was seen in this study, I was a hub but not the only one. Acting as co-participant only adds to the diversity of ideas and interpretive possibilities.

The other role that an art teacher can enact is as a consciousness of the collective. A consciousness is not a controller, but a commenter and organizer of ideas. In this role, the art teacher attends to emergent ideas, trend, and new possibilities for inquiry as coming from the collective activity of the individual students. This role does not even have to be affixed to the identity of the art teacher. The constraints that prompt a re-

engagement with the collective, as was used in Week 7, can ask students to act as a consciousness. This opens up even more possibilities for new ideas, interpretations, and inquiry.

FUTURE DIRECTIONS FOR INQUIRY

Throughout this study I have used the expression *new and social media*, rather than *social networking* or *Web 2.0*. The thinking behind this is that these latter terms will more likely become outdated than will *new and social media*—but that is left to be determined by how the future unfolds. The understandings re-presented in this dissertation point to a possible future for art education, which is rapidly shifting. I have deliberately refrained from going into too much detail or concern about the digital technologies used, because already the technological ground is shifting. Most participants in this study discussed interacting online at home in front of their own or their family's computer. It will not be long before networked computing becomes ubiquitously mobile shifting how we come to relate.

New and social media portability and network capability, as represented in locative technologies such as Global Positioning Systems (GPS), Radio Frequency Identification (RFID), and mobile phone location triangulation, presents the possibility of a hyperlocal physical space. The term *hyperlocal* has been referred to in journalism as the reporting of local and "micro" events by those living where they happen. It is represented in moves by large mega-news media channels like CNN to introduce I-Reporting and to use of YouTube for reporting news. Here, I use *hyperlocal* to refer to a digital virtual topography overlaying physical space. Like hypertext, the "hyper" in hyperlocal would point to and access information in physical spaces. As you would click on a link on a Web page or an image to zoom closer, in a hyperlocal world, you could metaphorically "click" on a feature in physical place to access a whole range of information. Or, with a networked mobile computing device, you could find your position on a map and see the photographs taken in that place, read their descriptions, or find historical documentation of events in that space. It is a blurring of the digital and physical. The spatiality of place could shift again, raising new questions about what it means to inquiry through art collectively.

In a possible future, the hyperlocal opens up new possibilities for thinking about the boundaries of classrooms, publics, and more broadly, space and place as new landscapes of possibility. Soon our publics will have another layer orienting our consciousness and teaching us how to engage with a place. Of course, this raises whole

new sets of ethical issues of access, control, and surveillance that we need to consider. Locative pedagogy attends to the ways that space and place can reorient embodied consciousness, thereby shifting how we come to relate, know, learn, and teach art. Locative pedagogy is one possible future elaboration of this research.

CONCLUSION

Early on in my career as a high school art teacher I realized I could not *cause* students to make meaningful art that represented their own artistic inquiry. No matter how well I planned or what or how many examples I shared, no lesson plan would enable a place full of divergent and diverse artistic inquiry. Instead I would, as Olivia Gude (2004) observed, just have piles of exercises and visual forms that were indistinguishable from the next. This was the case in my teaching until a few friends started talking to me about what made our undergraduate art school experience so meaningful. There, we had shared a deep commitment to our own ideas and artworks, while also attending to each other's developments, breakthroughs, and struggles. We lamented that art-making got hard after we had graduated and gone our separate ways. Making art got hard because we were no longer a part of a collective of inquirers. It was then I began trying to shape my art classroom into a space like the studio I had shared with colleagues during that period, one that would be familiar yet different in the context of school. I also started to shape my curriculum and pedagogy as a co-artist working alongside students, asking questions about what mattered to them most and how could we look closer at their concerns through artistic inquiry. We became a collective of artistic inquirers, mutually interdependent. It is this history that has come to shape the goals of this research and open up new possibilities for knowing, learning, and teaching art.

I did not set out to research new and social media; my former students occasioned it. It is perhaps why, Wilson's (2008a) research around the third pedagogical space has resonated with me through this writing. The idea of co-participating and inquiring with students, in a space that was as different from typical schooling experiences as possible, was always something that I would strive towards. That invitation to Facebook was a serendipitous gift for this research, for which I will always be grateful.

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APPENDIXES

APPENDIX A: SAMPLE INTERVIEW QUESTIONS FOR SEMI-STRUCTURED INTERVIEWS

First Interviews (Students)
How often do you use the Internet?
How often do you use a social networking service (MySpace, Facebook, etc...)?
Have you ever produced digital photos or videos and posted it online? How often would you say you do this?
Has anyone commented on your posted photos or videos? How did this make you feel?
Have you ever commented on someone else's photos or videos? How did that person who made them respond?
Do you keep a blog? Do you read other people's blogs?
What are the rules and policies regarding digital photograph/video and social networking in your school?
Do you think you would ever consider using, or do you already use, a social networking site to extend your classroom work? Why or why not?
If you could, what would you say are your qualities as a student?
How aware do you think you are of your teachers' and peers' thoughts, feelings, and attitudes?
Have you ever had a friend teach you something new? Describe an example.
Have you ever taught your teacher something new? Describe.

First Interviews (Teachers)
How often do you use the Internet?
How often do you use a social networking service (MySpace, Facebook, etc...)?
Have you ever produced digital photos or videos and posted it online? How often would you say you do this?
Has anyone commented on your posted photos or videos? How did this make you feel?
Have you ever commented on someone else's photos or videos? How did that person who made them respond?
Do you keep a blog? Do you read other people's blogs?
What are the rules and policies regarding digital photograph/video and social networking in your school?
What issues have you had regarding digital photograph/video and social networking in your classroom?
Do you think you would ever consider using, or do you already use, a social networking site to extend your classroom work? Why or why not?
If you could, what would you say are your qualities as a teacher?
How aware do you think you are of your students thoughts, feelings, and attitudes?

Have you ever had a student teach you something new? Describe an example.

Mid-Point Questions (Students and Teachers)
Why did you choose the self-portrait you did? Is this an image you use on other Web sites to identify yourself or do you use different ones? If you've changed your profile picture already, why? Would you again?
Has anything changed in the way you make art since using this site?
What has been your favorite artwork that you have posted so far? Why?
How do you like having your art looked at?
How does it make you feel to have your art commented on?
What has been some of the best kinds of comments your received so far?
Do you like looking at other participants' art?
Whose artwork on our site inspires you the most? Why? (You can name more than one.)
How have you liked the weekly projects?
Which one was your favorite? Why?
What do you think about the *Euphoria* clips you've seen so far?
Have you learned anything from it?
Do you like making art in response to video clips?
Would you like to see more? Why or why not?
How do you like being anonymous on the site?
Do you know who are students and who are teachers on the site? How do you know if you do? Do you think you'd like to know who everyone else is? Why or why not?
Have you taught anyone anything on the site so far? Has anyone taught you something new on the site?
Do you feel like you're learning? Why or why not?
What other features would you like to see on this site?
What other kinds of projects would you like try?
Any suggestions for changes?
If you haven't spent much time participating what would get you to participate more?
If you have been participating a lot, what should we keep so as not to discourage you?

Third Round Questions (Students and Teachers)
How old are you?
What grade are you in? How long have you been teaching?
What ethnic and or cultural/background would you describe yourself as?
Why did you participate in this project? What kept you motivated to participate?
What kept you from participating?
How did being anonymous on the site help (or hinder) you to create art?
What was your favorite project? Why?
What did you think about or how did you feel about the second half projects?
Week 5- Respond to another's image
Week 6- Create a prompt or question and respond to someone else's

Week 7- Curate an Album
Week 8- Independent Project
When you log on, do you have a routine that you have (ex. look at who's online first, or the latest activity)?
What prompts you to respond to someone's image?
Do you feel like your more of a looker rather than a responder?
What kinds of comments are the most useful for you (in response to your art)?
Are there any suggestions for improvement on the site? Anything you think must be kept (because it worked for you)?
What do you think you've learned from this project?
How have you learned? How do you know you've learned something?
Did you learn anything about yourself? If so, what?
Who taught you? What taught you?
Do you think this could work in an art class? How about other subject area's?

APPENDIX B: GETTING STARTED HANDOUT & YOUR RESPONSIBILITIES

GETTING STARTED- A Study of New Media Art and Social Networking

1. After you have given Mr. Castro your email and pseudonym (the fake username) he will send you an invite to the social networking site. When you receive the invitation email it will have a link for you to click on to sign up.

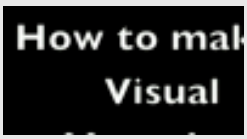
2. Create your user profile. **REMEMBER NOT TO GIVE ANY ACTUAL INFORMATION ABOUT YOU//THAT INCLUDES BIRTHDATE AND WHERE YOU LIVE - LEAVE IT BLANK.** There will be a series of short questions that relate to the research project for you to answer when you create your profile. Your responses will be private and only Mr. Castro will be able to view them.

3. Create your profile picture. Make a self-portrait that doesn't show yourself directly. Watch the "Making of a Self-Portrait" video and forum post by Mr. Castro for an example.

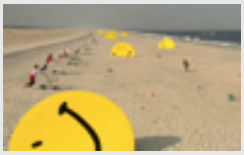
4. Watch the "How to Make a Visual Metaphor" video or read the forum post by Mr. Castro as a guide for sharing ideas, thoughts and feelings without showing identifiable people or places.

5. Read the "Composing With Your Camera" forum post by Mr. Castro on tips for making engaging photographs and videos.

6. Check out the "How To" forum posts if you need help uploading pictures or videos. Feel free to post your own "How To's."



7. Watch the "Week 1 Project" video and respond to the question "How does the world around you define happiness visually?" with a digital photograph(s) or video. Post your photographs or video with a short description or title.



YOUR RESPONSIBILITIES-
A Study of New Media Art and Social Networking

Contribute by posting photos and videos in response to the weekly projects.

Contribute by posting comments to participants' photos, videos or reflections.

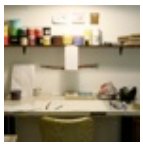
Never post text, photos, or video that directly identifies you, anyone else, or Oak Secondary. Content that does this will be removed immediately. Use visual metaphors to describe your ideas, thoughts and feelings.

Be respectful of other participants' photos, videos, reflections and comments by being descriptive, constructive, and positive.

Never harm anyone or thing (this includes property and wildlife) in the production of any content (text, photo, or video) for this project. Use visual metaphors to express ideas.

APPENDIX C: PROFILE IMAGES AND PSEUDONYMS OF PARTICIPANTS.

Mary Lou
Art Teacher

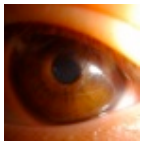


Rick O'Shay
Art Teacher- Preservice

stormy
Art Teacher

Lucy MaGee
Art Teacher

Ingrid DiCaprio
Grade 12 Student



Ricky Bobby
Grade 12 Student

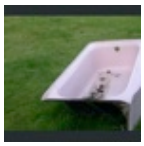
Haine Walker
Grade 10 Student

William S. Maugham
Grade 12 Student

Pucchomochi
Grade 11 Student

Cute Bunny
Grade 11 Student

Sunshine Ice
Grade 12 Student



Gaelan Knoll
Grade 11 Student

John Freeman
Grade 12 Student

Opti
Grade 11 Student

Sophie Lee
Grade 11 Student

Jean Valjean
Grade 9 Student

Mango Jello
Grade 11 Student

Kezia
Grade 11 Student

Milo Fishie
Grade 11 Student

Mr. John Charles
Researcher

APPENDIX D: CERTIFICATE OF APPROVAL

The University of British Columbia
Office of Research Services
Behavioural Research Ethics Board
Suite 102, 6190 Agronomy Road, Vancouver, B.C. V6T 1Z3

CERTIFICATE OF APPROVAL - FULL BOARD

PRINCIPAL INVESTIGATOR:	INSTITUTION / DEPARTMENT:	UBC BREB NUMBER:
Kit M. Grauer	UBC/Education/Curriculum Studies	H08-00007

INSTITUTION(S) WHERE RESEARCH WILL BE CARRIED OUT:

Institution	Site
N/A	N/A

Other locations where the research will be conducted:

CO-INVESTIGATOR(S):
Juan Carlos Castro

SPONSORING AGENCIES:
N/A

PROJECT TITLE:
A Study of New Media Art and Social Networking in The Secondary Art Class

REB MEETING DATE:	CERTIFICATE EXPIRY DATE:
March 13, 2008	**March 13, 2009**

DOCUMENTS INCLUDED IN THIS APPROVAL: **DATE APPROVED: March 27, 2008**

Document Name	Version	Date
Protocol:		
Research Proposal: New Media Art and Social Networking in the Secondary Art Class	N/A	February 3, 2008
Consent Forms:		
Teacher Consent Form	N/A	March 17, 2008
Parent Consent Form	N/A	March 17, 2008
Assent Forms:		
Student Assent Form	N/A	March 17, 2008

The application for ethical review and the document(s) listed above have been reviewed and the procedures were found to be acceptable on ethical grounds for research involving human subjects.

Approval is issued on behalf of the Behavioural Research Ethics Board and signed electronically by one of the following:

Dr. M. Judith Lynam, Chair
Dr. Ken Craig, Chair
Dr. Jim Rupert, Associate Chair
Dr. Laurie Ford, Associate Chair
Dr. Daniel Salhani, Associate Chair
Dr. Anita Ho, Associate Chair