PLAYING WITH PERSPECTIVES

*USING DIGITAL VIDEO WITH TEENAGERS
TO EXPLORE PERCEPTS, CONCEPTS, AND
THE OTHER'S POINT OF VIEW*

MICHAEL SMITH-WELCH

BACHELOR OF FINE ARTS
COLLEGE OF THE VISUAL ARTS
STATE UNIVERSITY OF NEW YORK AT PURCHASE
1994

SUBMITTED TO THE PROGRAM IN MEDIA ARTS & SCIENCES,
SCHOOL OF ARCHITECTURE & PLANNING
IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
OF THE DEGREE OF MASTER OF SCIENCE
AT THE MASSACHUSETTS INSTITUTE OF TECHNOLOGY

SEPTEMBER 2004

*Signature of Author*_____

Michael Smith-Welch
Program in Media Arts and Sciences
24 August, 2004

Certified by: _____

Mitchel Resnick
LEGO Papert Associate Professor of Media Arts and Sciences
Program in Media Arts and Sciences, MIT

*Accepted by:*_____

Andrew B. Lippman
Chairperson
Departmental Committee on Graduate Studies

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ABSTRACT

This thesis is based on the interplay between people coming to understand their own minds and coming to understand the minds of others. This interplay is pursued through an examination of the rich and intricate relationship between perceptions and concepts. Working with a number of teenagers from the South Boston community, I have developed a workshop format that allows teenagers to consider the very nature of *perspective-taking* through the thoughtful design of experimental video works. Adolescents use media-rich design activities to delineate how perceptions relate to conceptions and how this relationship can form a different perspective. In short, teenagers become producers of media, not merely consumers of it, through an approach to the problems of perception. I explain the social, cognitive, and material basis for this work, and unpack an extended case of these elements in use. The hope is that by engaging students in a study of what it might mean to perceive and conceive of something, they may come to realize that perspective-taking is not only possible but is necessary for understanding the complexities of the subjective world. This thesis is less about having teenagers take different perspectives than it is about having them recognize that different perspectives can exist.

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M ICHAEL S MITH - W ELCH

Advisor
_____

Mitchel Resnick
Associate Professor of Media Arts and Sciences
LEGO Papert Professor of Learning Research
Program in Media Arts and Sciences, Massachusetts Institute of Technology

Reader
_____

Chris Csikszentmihályi
Assistant Professor of Media Arts and Sciences
Fukatake Career Development Professor of Research in Education
Program in Media Arts and Sciences, Massachusetts Institute of Technology

Reader
_____

Robert Selman
Roy Edward Larsen Professor of Human Development and Education
Chair, Human Development and Psychology Area
Harvard Graduate School of Education, Harvard University

ACKNOWLEDGEMENTS

READER BIOGRAPHIES

MITCHEL RESNICK

Mitchel Resnick explores how new technologies both necessitate and facilitate deep changes in the ways people think and learn. Resnick's Lifelong Kindergarten group has developed a variety of educational tools, including the "programmable bricks" that were the basis for LEGO's award-winning MindStorms robotics construction kit. Resnick also led the development of StarLogo, a software toolkit for modeling decentralized systems. He co-founded the Computer Clubhouse project, a network of after-school learning centers for youth from underserved communities. Resnick earned a BS in physics from Princeton University in 1978, and an MS and PhD in computer science from MIT. He is author of *Turtles, Termites, and Traffic Jams* (1993), co-editor (with Yasmin Kafai) of *Constructionism in Practice: Designing, Thinking, and Learning in a Digital World* (1996), and co-author (with Vanessa Colella and Eric Klopfer) of *Adventures in Modeling: Exploring Complex, Dynamic Systems with StarLogo* (2001).

CHRIS CSIKSZENTMIHÁLYI

Chris Csikszentmihályi directs the MIT Media Lab's Computing Culture group, which works to create unique media technologies for cultural applications. Prior to coming to MIT, he was assistant professor of electronic art at Rensselaer Polytechnic Institute. He has worked in the intersection of new technologies, media, and the arts for nine years, lecturing, showing new media work, and presenting installations in both Europe and North America. Csikszentmihályi has taught at the University of California at San Diego, Rensselaer Polytechnic Institute, and at Turku University. A recent piece, DJ I, Robot, was nominated for the Best Artistic Software award at Berlin's Transmediale, while a previous piece, Natural Language Processor, was commissioned by the KIASMA Museum in Helsinki, Finland. Csikszentmihályi received an MFA from the University of California at San Diego, and a BFA from the School of the Art Institute of Chicago.

ROBERT SELMAN

Robert L. Selman, Ph.D., is the Roy Edward Larsen Professor of Human Development and Education at the Harvard Graduate School of Education where he served as Chair of the Human Development and Psychology Area from 2000 to 2004. He is the founder within this area of the Risk and Prevention Program--in 1992--and served as its first Director through 1999. At the Harvard Medical School, he is Professor of Psychology in the Department of Psychiatry, where he serves as Senior Associate at the Judge Baker Children's Center and at the Department of Psychiatry at Boston Children's Hospital. Selman has engaged in research and practice focused on how to help children develop social awareness and engagement competencies as a way to reduce risks to their health and promote their social relationships as well as their academic performance. Currently, he does practice-based research, studying interpersonal and intergroup development across the age range from preschool through high school.

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for my mom, Joan Smith

who puts ideas into practice better than anyone

"sufficient unto the day is the evil thereof"

The 'devices' created by artists and scientists are tools that amplify our *perception* of the world.

-- Eliot Eisner, *Children's Play and Learning*

Persons understand each other, but not by penetrating each other's being, not by having each other's experiences. Understanding another involves *conceiving* of the other's experiences.

-- Owen Flanagan, *Consciousness Reconsidered*

PART I – CONCEPTS (MAKING IDEAS)

INTRODUCTION

1.1 Outside In, Inside Out

THIS STUDY IS ABOUT HOW DIGITAL VIDEO can inform a teenager's understanding of the social world. It provides a framework for using video with teenagers and describes a workshop scenario where adolescents try to begin to reflexively understand their social awareness through the design of specialized video vignettes that represent the profound relationship between perception and conception. It is *not* about helping teenagers develop their ability to take another perspective. It is simply about coming to know that another perspective is possible.

This thesis is very much about identity formation, the role social understanding contributes to identity, and the way technology can become a scaffolding for this formation and understanding. These are

not new themes, and two recent works come to mind: Marina Umaschi Bers development of the *Zora* environment (Bers, 2001) and Michelle Hlubinka's investigation of digital storytelling (Hlubinka, 2003). In the former case, Bers developed a computational environment where teenagers constructed a virtual room representative of their identity. They then engaged with others in real time through these *autotopographies* that were, in essence, "spatial representations of identity" (Bers, 2001, pg. 57).

On the other hand, Hlubinka engaged adolescents in a form of storytelling, whereby kids used standard off-the-shelf computer tools to generate a montage of images and sounds that revealed their reflections of their work. Like Bers' *autotopographies*, individuals were encouraged to construct a world based on "their own experiences," to "emphasize their own perspectives" (Hlubinka, 2003, pg. 17).

If my analysis is correct, the two former examples approach self-understanding primarily from the *inside out*. In constructing a virtual world that is based on one's identity, the user reflects upon who they are and creates computer-mediated representations of that self. In designing a digital story, the creator also reflects on what's going on "inside" and then makes a visual representation based on that introspection. The upshot is that a person's identity is used as a starting point, as a primary tool for understanding the world.

For this thesis, teenagers use the *video camera* as the primary tool, gathering images of the world in which they find themselves. They then engage in a concentrated editing process that – ideally – generates some inner reflection. If the former examples – Bers and Hlubinka's, respectively – can be said to support identity and social awareness from the inside out, the work described here offers an opportunity for kids to work *outside in*. Granted, this *inside out/outside in* dichotomy creates an *either-or* scenario, oversimplifying and distorting the nature of internal/external, individual/society, and subject-object relations (Dewey, 1938; Nietzsche, 1966). To be fair, Bers and Hlubinka's work incorporates vast amounts of engagement with the outside world. The *outside in* approach I use here is such that workshop participants

attempt to emphasize the inner lives of others by first bracketing off their own viewpoints. The camera helps facilitate this. Later the workshop participant reflects on those viewpoints during the editing phase, consider how a viewer might perceive of, and hence conceive of, the imagery they are constructing. To do this the workshop participant, in large part, must rely on aspects of their own identity, how they themselves perceive the world and conceive of the world.

1.2 Objectivity/Subjectivity - Perspectives

THE TENSION IN THIS THESIS LIES IN THE relationship between an *inside out* and an *outside in* approach to understanding the world. The relationship between the internal world (the subjective) and the external world (the objective) is the fundamental problem of philosophy – Western or otherwise (Danto, 1997). Whether or not subject-object relations can be construed as a problem, the relationship does get complicated when other minds – other subjects – become part of the objective worlds (Wittgenstein, 1953; Heidegger, 1962). Other minds have their subjective view too. This is the crux of this thesis: On the one hand, a workshop participant *brackets* their own internal understanding of the world, using the camera as a tool for collecting elements of the external world. The idea is to simulate an objective approach. Later, these images are manipulated in a purposeful way as to get a glimpse of the fundamental subjective qualities that make up experience. In short, this thesis is about teenagers looking at other minds, that are themselves looking at something, in this case a video artifact. This artifact is designed in such a way that the designer – a priori – knows that one viewer might be "seeing" something different than another viewer.

This is not a trivial point. This thesis focuses on the possible human ability to adopt the point of view of someone else. This might mean heading down a relativistic road, where all views are valid. But consider the possibility for two forms of relativism – one adhering to an "everything goes" policy, the later typified by *perspectivism*:

> Perspectivism does not result in the relativism that holds that any view is as good as any other; it holds that one's own views are the best for oneself without implying that they need be good for anyone else. It also generates the expectation that new views and values are bound to become necessary

as it produces the willingness develop and to accept such new schemes…
(Nehamas, 1985, pg. 72).

Friedrich Nietzsche – the iconoclastic philosopher of the late 19th century – lived and died by perspectivism, in large part exemplified by his *will to ignorance* and its cohort, the *will to knowledge*. In *On the Genealogy of Morals* Nietzsche expresses his brand of perspectivism as such: "There is *only* a perspective seeing, only a perspective 'knowing'… the *more* eyes, different eyes, we can use to observe one thing, the more complete will our 'concept' of this thing, our objectivity be" (Nietzsche, 1968a, part III, sec. 12).   Supposing that the perspectivism that Nietzsche adheres to is true, we get a fuller account of subject-object relations.   This thesis is meant to help teenagers come to grips with the complexities of perspectivism, as it is embodied by the relationship between perceptions and conceptions.

For the adolescent – the age group that this thesis is built around – perspectivism probably plays some kind of implicit role in development.   Ronald Taylor, in his essay, *Black Youth, Role Models and the Social Construction of Identity* asserts that the developing adolescent is constantly trying to "lose and find themselves in others" (Taylor, 1989, pg. 158).

In *The Will to Power* Nietzsche exhorts "Some should find; others, we others! – should import!" (Nietzsche, 1968b, pg. 606).   The double meaning here is precious: While Nietzsche refers to the adoption of the other's interpretation, I look at it from the standpoint of the technological goals of this thesis.   The process by which one transfers digital video to a computer is commonly referred to as "importing".   It is my hope that the kinds of projects that are described below will lead to a teenager's ability to use digital video for mediating the *losing and finding of one's self in others*, for coming to an understanding of interpretation and the possibility to import the views and values of other minds.   Here, teenagers use technology to understand the very notion of perspective, what it literally means to have a point of view, and they use technology to understand the metaphorical aspects of perspective.

1.3 The Thesis

THIS ESSAY WILL DEMONSTRATE A SPECIFIC approach to social, cognitive, and material elements. The overall goal is to use these three domains as a *tripod* of intellectual support, "based on its absolute minimum of three points for fully stable support" (Gould, 2002, pg. 15).

1.3.2 • THE TRIPOD

IN HIS ENGAGING BOOK *Changing Minds: Computers, Learning, and Literacy*, Andrea diSessa (2000) describes what it might mean to become computationally literate. While this current study is not going to make any claims about literacy (though I briefly mention the differences between literacy and fluency); I will rely on what diSessa calls the "three pillars of literacy". According to diSessa, any strong learning activity must have solid social, cognitive (mental), and material supports.

My approach to these fields is different than that of diSessa's, but the essence remains. The social elements I use are elaborated through discussions of the possibility that people can have different points of view.   I address this by asking what it might mean to have a different point of view; this may lead to a better understanding of how we might *take* another perspective. I focus on the nexus of perception and perspective, and make some conclusions about the perception of other people and the perceptions other people might have.

When discussing mind I examine the learning process. This process is based on the constructionist approach to learning and adheres to the belief that the best learning happens when someone designs physical artifacts based on representations in the mind. I detail a small part of the history of the constructionist theory of learning, and try to show how this type of learning might support a study of human perspective-taking capability.

The material binds together my description of percept-concept relations and its role in socialization, with beliefs about a design-based learning process. Examining the material – in this case digital video – gives me opportunity to look at the role media plays in the life of the

adolescent. Ultimately, I want to know to what degree can this medium (namely, video) be leveraged to support a teenager's exploration of the world.

1.3.2 • The Methodology

This thesis is qualitative in approach. Using my background as an educator and artist, I developed a series of experiences for a group of teenagers. The setting for the experiences, the conceptual framework for the experiences, and the experiences themselves, are described in the following chapters. The examples are representative of the social, cognitive, and material elements and the goal is to give teenagers the opportunity to investigate their social world through designing with digital video.

The sample of kids was quite small and to some degree random. Two kids in particular played a key role. At times I worked with five teenagers at once, at other times only one. In most cases, I was working with two. This work was carried out three afternoons a week, for roughly three months. Data collection occurred mostly through observation, occasional short interviews, informal conversations, and the artifacts created by the participants. A few small projects and a detailed case study are presented.

Again, this thesis is a means to forming a sound foundation for the three main *conceptual categories*; the social, cognitive, and material elements. Mainly, I see this thesis as a framework for future experiences developed for adolescents; experiences that will bring together the complexities of the social world, the scaffolding provided by learning through design, with the conceptual and aesthetic possibilities of digital video.

1.3.3 • The Chapters

Through this work I introduce both abstract ideas and concrete, practical applications. The first part of this essay – "Concepts (Making Ideas) – develops a philosophical approach. The

second part –"Percepts (Making Images) – is rooted in the pragmatic, everyday world of the urban teenager as they make things.

Chapter One – The INTRODUCTION paints a backdrop for this thesis, introducing the tension between an *outside in* and *inside out* approach to understanding subject-object relations.

Chapter Two – THE HURLY-BURLY describes the institutions where I worked (South Boston Boys and Girls Club's Computer Clubhouse) and briefly describes the community of South Boston itself.

Chapter Three – FIRST PERSON PERSPECTIVE begins to explain how certain images and moving pictures can be used to develop projects that support an understanding of perceptions, conceptions, and the social world.

Chapter Four – In SOCIETY, MIND, MATERIAL I lay the theoretical foundation for developing the kinds of video projects developed in the workshop. Here I look at the relationship between perception and conception, design-based activities, and the role video plays in the life of the adolescent.

Chapter Five – TEENS, TECHNOLOGY, TECHNIQUES pays particular attention to the technology used throughout this project, describing some initial attempts at image-making and illustrates some of the methods used for learning the process.

Chapter Six – The THIRD PERSON PERSPECTIVE expands upon a video work designed by two teenagers at the South Boston Computer Clubhouse. The artifact created here – at least implicitly – reveals some of the themes regarding the social, cognitive, and material elements I have outlined. The chapter also critiques this work and portrays the experiences of the two workshop participants.

Chapter Seven – In the CONCLUSION - REFLECTING ON *DEVICES OF THE MIND* I summarize my experiences while

developing a sound footing for future work in the area of society, teenagers, and video.

<u>Appendix</u> – THE STORY OF THE *INTERACTIVE ART CONSTRUCTION TOOL* describes a software tool designed specifically for this thesis. While it was not used extensively during the project, I describe the history of its design and reveal why it was not relied upon for engaging teenagers in developing final works.

THE HURLY-BURLY

WITTGENSTEIN ONCE REMARKED, "How could human behavior be described?

> Surely only by sketching the actions of a variety of humans as they are all mixed up together. What determines our judgment, our concepts and reactions, is not what one man is doing now, an individual action, but the whole *hurly-burly* of human actions, the background against which we see any action (Wittgenstein, 1977, pg. 97, emphasis added).

This chapter aims to describe the background against which the actions of the people and projects described below took place. The thesis was carried out over three months in South Boston, Massachusetts. Primary work took place inside the Computer Clubhouse, housed itself within the South Boston Boys and Girls Club. A portion of the work carried out took place in the wider community of South Boston.

2.1 The Computer Clubhouse

THE COMPUTER CLUBHOUSE NETWORK is an international organization of informal after-school learning centers, dedicated to creating interesting design-based experiences supported by technology. Started by researchers at MIT's Media Lab in collaboration with the Computer Museum (now part of the Boston Museum of Science) and funded by the Intel Corporation, the Computer Clubhouse Network reaches out to underserved communities, not only bridging the so-called digital divide but also introducing new approaches to learning, and new technologies. The Network relies on volunteer mentors to spend time in the club working with children. These mentors range in age from college students to older professionals and retirees. Children of all ages and backgrounds utilize the Computer Clubhouse Network. Each individual clubhouse operates within an already existing community organization and in the Boston area this partnership is through the Boys and Girls Club of America. In each of the five Boys and Girls Clubs throughout the metropolitan Boston area there is a Computer Clubhouse.

entering the South Boston
Computer Clubhouse

The Computer Clubhouse in South Boston is a small space, located on the second floor of the Boys and Girls Club. It has eleven computers, most of which are centered in the middle of the room. The technology at clubhouses is generally donated, and in the case of South Boston all of the machines are older Dell models, running the Microsoft Windows 98 operating system. One newer machine, dedicated to music projects and located in the back corner of the room, runs the newer Windows XP operating system. While this is the most popular machine with older kids (it has the best media software for playing their favorite music videos off of the Internet) younger kids are content (most of the time) with the older machines. The network connection for the machines runs slowly, but smoothly most of time. Sometimes there are router issues, often there are problems with software viruses.

Typically, children spend time surfing the Internet or using online Flash-based projects. The most popular design tool is Adobe Photoshop, though it is often used for the same kind of project, the placement of a photograph of the child's own face on the body of their favorite celebrity. There were two video cameras designed by the Intel

Corporation as part of their *Intel Play* line. These were used in conjunction with software also designed by Intel. Kids make little movies of each other, but like the head/body/Photoshop combinations, these movies never deviated from the standard: A moving image of one or two kids sitting at the computer making funny faces or sounds then playing them back endlessly.
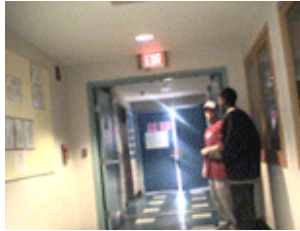
the hallway outside
the Computer Clubhouse
in the South Boston Boys
and Girls Club

Claire Newton, the coordinator for the South Boston Computer Clubhouse, is an energetic, recent college graduate interested in making the Computer Clubhouse a challenging experience on a daily basis. While she did not have direct experience with technology or children, she learns quickly. Claire had been working at the Clubhouse for a year when I arrived in South Boston and she seemed very comfortable with her role in the Computer Clubhouse and the Boys and Girls Club at large. Like any job within an institution, Claire had to contend with various bureaucratic problems, either on the local level within the South Boston Boys and Girls Club or on a wider level with the Boys and Girls Clubs of America. Claire handled these situations well and made my work in South Boston not only possible, but also enjoyable.
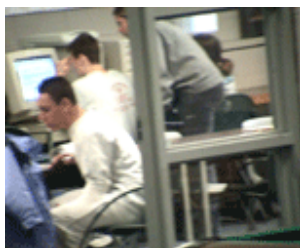
inside the
"Teen Center" in the
South Boston Boys
and Girls Club

Children came to the Computer Clubhouse room at specific times throughout the Boys and Girls Club's hours of operation, 2:30 pm to 8:00 pm, Monday through Friday. Time slots were divided by age; from 2:30 to 3:15, 8 and 9-year-olds, 3:15 to 4:00, 10 and 11-year-olds, and so on. The space was small so many children are turned away – this was a major disappointment to them as the Clubhouse was the most popular space in the building. Instead these children would go to a crafts room, or the gym, or to the games room. In addition, not many teenagers actually came to the Computer Clubhouse in South Boston despite the fact that they had a built-in time to be there, 5:45 to 6:30. Teenagers were not allowed on the second floor except for their prescribed time slot, so they often just skipped the opportunity. Most teenagers stayed down in the "Teen Center", located in the basement. This area had a constantly running television set, a couple of billiards tables, a ping pong table, a füsball table, a weight room, and an education space, itself containing many computers that kids could do

homework on. The "Teen Center" is not a creative, design-oriented space in the way that the Computer Clubhouse is meant to be.

2.2   The Boys and Girls Club

IN EARLY FEBRUARY OF 2004 I BEGAN volunteering three days a week at South Boston Computer Clubhouse, housed within the South Boston Boys and Girls Club. As a mentor I started working with all of the kids who used the space, helping them with a variety of design-based projects. During this time I was able to discover that many of the structural issues that embody the South Boston Boys and Girls Club – and by default, the Computer Clubhouse – were problematic for carrying out my work with adolescents: 1.) prescribed working times (periods), 2.) limited space, and 3.) low adolescent use.

the South Boston
Boys and Girls Club

I dedicated some of my mentoring time to the "Teen Center", getting to know a few of the kids who spent time there. In this vein Claire Newton also went out of her way to introduce me to teens if they happened to come by the Clubhouse. Secondly, I was allowed to work with kids in an unused room next to the Clubhouse on the second floor. This "Cabin Room" as it is called had the interior of a log cabin, replete with fireplace and snowshoes hanging on the wall. A constant source of amazement to myself and the teens I was working with, the "Cabin Room" motif can (so I've been told) be found in every Boys and Girls Club in the Boston area. I never found out if this is actually true, nor did I discover why a "Cabin Room" actually exists. Regardless of its genesis, the "Cabin Room" made all the difference. First, it gave the teenagers I worked with another place where they could spend their time. Third, teenagers could work in this room with me beyond their allotted Computer Clubhouse time.   The "Cabin Room" became a personal place for the kids I worked with in South Boston as they developed a sense of ownership over the project. To facilitate this work I brought MIT-owned laptops (two Apple G3 PowerBooks) with me to South Boston each day.
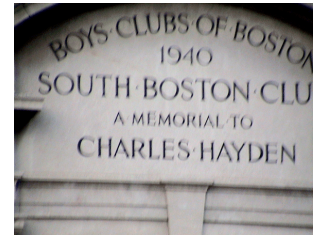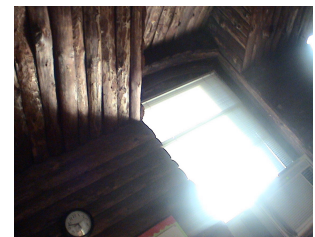
light pours into the
"Cabin Room"
at the South Boston
Boys and Girls Club

2.3 South Boston

Getting out of the clubhouse and into the larger South Boston community was a priority; making some discoveries about the social world in which these kids found themselves might help solidify claims I'm making about social experience and the role perceptions play in it. South Boston is just as unique as any other inner-city neighborhood, with a long history, a changing present, and a complicated future. Traditionally, South Boston has been home to the Irish and Irish Catholic who came to this country in droves at the end of the 19th Century and throughout the 20th Century. South Boston contains the City of Boston's oldest Catholic parish, St. Augustine's – located across the street from the South Boston Boys and Girls Club.

early spring, on the
streets of South Boston

In a sign of the changing times, the Boston Archdiocese has marked the St. Augustine Catholic parish for closure. This is only one of many examples of a changing community. Indeed, one could say that the South Boston Community is changing on many fronts – only a very serious ethnography or sociological study could truly track these changes, illustrating how they are related, and making predictions regarding how the changes might unfold.

The facts as they have been presented in the media or were explained to me in an informal way are as such: Lack of attendance was cited by Bishop Sean O'Malley as the primary reason for the parish closing – while scandal in the Catholic church (sex scandals within the priesthood) raged in the background. Some people – particularly those with children in the St. Augustine's parochial school – were generating petitions and funds to prevent the closing. On the day that the closing was announced there was little talk of the event within the South Boston Boys and Girls Club; indeed, only once did I hear it mentioned, by a young child standing in the entrance way of the club, asking, "are they really closing the church?"

The church closing represented a small change, but there are other elements that are challenging the parochial community of South Boston. Over the last ten years many families have moved into the community from more traditionally black and Latino neighborhoods such as neighboring Dorchester and Roxbury. It is difficult for me to

say what change this has had on South Boston, but I know it has been difficult for the South Boston Boys and Girls Club, if only because diversity of the after-school center has increased with little overt attention paid to how diversity can influence the entire population of an institution. In short, an influx of varying perspectives was being ignored. In addition, new high rent condominiums have been built around West Broadway while new upscale eating establishments have been built along East Broadway in South Boston. This economic incursion has amounted to a cultural change of a different kind. While this economic boom (if it can be called that) is a good sign to some, there is no doubt that a culture-clash of one sort or another is inevitable. Tenants who can afford these new condominiums and expensive (relatively speaking) restaurants also represent an incursion of new perspectives. This makes South Boston a fascinating neighborhood within which to start considering the role social elements play in the life of a teenager.

FIRST PERSON PERSPECTIVE

THE COMMUNITY AND ITS INSTITUTIONS ARE ALWAYS in the background of this work: This makes sense as this thesis describes the beginning of an investigation of the possibility that people can have different points of view. In this chapter, I introduce a particular phenomenon that reveals how an objective world can quickly become subjective, then present a film that illustrates this point in a way that is appealing to kids. Finally, I describe a project with a group of teenagers that begins to demonstrate how designing with digital video can take advantage of the incongruities between vision and thought.

3.1 Noticing an Aspect, Seeing As

CAN YOU INTRODUCE CLASSICAL philosophical problems inherent in a subject-object relationship to teenagers? What about the complexities of the subject-subject relationship? Perspectivism? Probably not, but the route I have chosen to begin engaging kids in conversations about these rather philosophical notions is through the idea of *ambiguous imagery* (Palmer, 2001, pg. 9). *Ambiguous images* are for the most part illusions. For the purposes of this thesis, I try to stretch the power of *ambiguous imagery* across a wide range of phenomena, if only because this idea helps concretize the place of ambiguity in the life of the adolescent – say nothing of the place of ambiguity in the life of everyone else.

Ambiguous images played a role in the work of the 20th century philosopher Ludwig Wittgenstein. In his *Philosophical Investigations* Wittgenstein introduces his interest in *ambiguous imagery* as such: "I contemplate a face, and then suddenly notice its likeness to another. I *see* that it has not changed; and yet I see it differently. I call this experience 'noticing an aspect' " (Wittgenstein, 1953, pg. 193). I am tempted to put emphasis on the *I* in the phrase, 'yet *I* see it differently.' What makes *ambiguous images* so compelling is the way their formal simplicity can elicit complex response and reveal how people perceive and can conceive of things differently.

The most common forms of *ambiguous images* can be found to the right. The most notorious of which – made famous by Wittgenstein – is the "duckrabbit". While Wittgenstein also commented on the "Necker cube", perhaps the most often seen *ambiguous image* is the "candlefaces". In all of these images the viewer can see the image in one of two possible ways, but not both at the same time. More to the point, one person can see the image as one thing – say, a rabbit – while someone else can see it as a duck. Presumably, both people are "seeing" the same thing, yet they are "seeing it as" something completely different. Again, Wittgenstein: "And I must distinguish between the 'continuous seeing' of an aspect and the 'dawning' of an aspect" (Wittgenstein, 1953, pg. 194). Despite Wittgenstein's
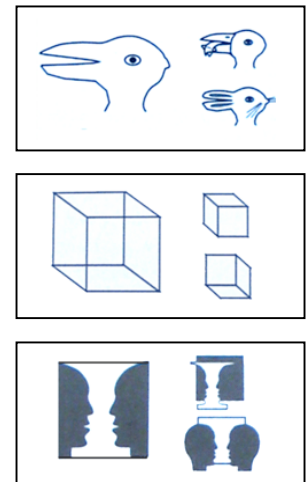
three well-know
examples of the
ambiguous image

insistence that these "problems" are merely subject to the rules of a language game, this is a crucial point worth repeating: One can be engaged in the 'continuous seeing' while someone else is engaged with the 'dawning of an aspect'.

The *ambiguous images* illustrated here are relatively simple. Again, this is why they hold so much power. But, there are only two possible views that one can subjectively take. Either you see it one way, or the other. Two possible views, two possible perspectives. An underlying goal of this project is to help teenagers understand just how ambiguous the world – social or otherwise – actually is and to use the construction of *ambiguous images* with digital video to bring this point home.

3.2 Zea

I DID NOT SHOW THE KIDS IN South Boston the common *ambiguous images* noted above. In retrospect I wish I had – not to see how they might react to these images as individuals, but to see how they would react to others reacting to them. As a key aspect of this essay this "meta" charcteristic will arise time and again.

Because of the workshop's focus on moving images, I decided to show the participants, *Zea: A Study in Perception*. This short color film, done in the mid-1970's by the Film Board of Canada, examines a very common entity in an ambiguous manner. The film is about popcorn, the popping of popcorn to be exact. Yet for the first 4.5 minutes of the film's 5 minute running time you do not know it is popcorn. Only at the end do you realize you are watching a rather "familiar" scene. The ambiguous imagery here was created by filming the process (popcorn heated up in oil) with extreme close-ups. This gives the impression that you are watching some strange organic development. That the image was always shifting, yet remained ambiguous, brought a level of complexity to the issue that the "duckrabbit" could never amount to. One is constantly experiencing the "dawning of an aspect", from one scene to the next. This can be attributed to the narrative flow of motion pictures, be it a slide show, a film, or a video.

This film turned out to be quite provocative for the teenagers in South Boston. The forms had a grotesque quality that greatly appealed to

them. The length was long enough that their anxiousness was raised to an appropriate cathartic level, but short enough that their frustrations did not dampen that catharsis. Interestingly, the end of the film was always a letdown: the mystery – and literally the magnitude – of the images did not stand up to images of the mundane popped popcorn.

What proved to be most interesting about *Zea* was the degree to which the kids wanted to show the film to kids who had not yet seen it. In doing so the requirement of the first-time viewer was to say out loud what they thought a particular image, frame, or sequence of frames looks like. These verbal reports put emphasis on the Wittgensteinian, "yet I see it differently". Kids would write down their guesses for comparison; there would be a lot of overlap and a lot of commonalities between guesses, but many original ideas came about. Here's a typical list generated by a 15-year-old boy as he watched the film:

- a planet
- the ocean
- a baby
- an egg (of some sort)
- river
- a frog's eye
- fish in water
- rocks in a river

One teenager, an 18-year-old, did guess that the liquid substance in the film was oil. Many kids said that it looked like a frying egg (alluding to oil). These comments are interesting because most kids do not even know that popcorn is heated in oil; the age of the microwave has placed certain (greaseless?) lenses over the eyes of the young. In many ways they had to watch the film as a phenomenologist, taking in the quality and character of the images they saw, with little recourse to a priori knowledge. The founder of phenomenology, Edmund Husserl encouraged his followers – in a Kantian fashion – to go, "To the things themselves" (Husserl, 1967, pg. 12). Husserl also believed in the idea of the *horizon*: "The horizon is constituted by those aspects of a thing that are not given in perception but rather are possibilities which can be given in further acts of perception or reflection" (Moran, 2000, pg. 161-162). To a great degree this is the experience of watching *Zea*.
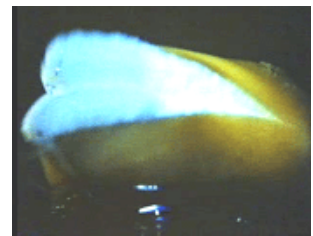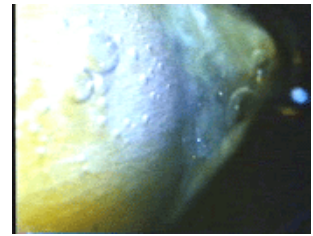
images from
*Zea: A Study in
Perception*
by the
Canadian Film Board

Husserl's horizon points to what was the most fascinating part of this small activity; it was not what the kids were saying about what they saw. What was fascinating was the degree to which other kids wanted to see (and hear) how other kids reacted to a first-time viewing of the film. They seemed genuinely interested in the perceptions and subsequent conceptions of the viewer. While kids often like to, "be in the know" *Zea* was not used as a tool for ridiculing the conceptual framework of the first-time viewer. Rather it was a comfortable way that they could experience different viewpoints. Because these viewpoints were generated by what is at first ambiguity, it gave kids the opportunity to watch others negotiate ambiguity, in a safe manner. I imagine that the life of the typical adolescent is structured so that things are meant to appear unambiguous – but for the most part they are still vague. Math class, hanging out after school, time at home with family, is structured to be sure. But I can also imagine that these structures are often uncertain at best, and confusing at worst. To experience others experiencing ambiguity you have had yourself at one point in time is pleasurable: This pleasure is related to the joy (most) people experience when they teach something they know to someone else.

3.3 Füsball: A Study in Perception

IN ADDITION TO BRINGING KIDS TOGETHER in an interesting way, what made *Zea* work so well was the fact that it was a film. While I did not show the typical *ambiguous images* to the students for comparison sake, I tend to believe that the changing scenes provide more interesting visual feedback. You are not 'noticing an aspect' only once, 'seeing as' in a binary way. The perception constantly changes and shifts until the precise moment when you can say with some degree of certainty, "I am perceiving X." Shifting scenes – viewpoints as it were – *combines* Wittgenstein's 'continuous seeing' and 'dawning of an aspect'. With moving images you can report, "I am seeing A, now I see B, now C" ad infinitum, until you can say, "It is certainly Y, now, wait…it's Z!"

While moving images makes for a more interesting test bed for perceiving ambiguity, there is a more dominant reason to use the

moving image. *Plainly, this medium is very much a part of a teenager's world.* As a recognizable medium the imagery may not be entirely comprehensible but to what degree it is comprehensible is associated with the relationship children have with the medium. McCluhan would be convenient here but the point I want is about the distinction between dynamic images and static ones. Two-dimensional static images such as the "duckrabbit" are interesting up to a point, but their novelty quickly wears off. Video as a material seems well suited for engaging kids in what would otherwise be conceptually difficult terrain. I will speak more to this end in the third section of chapter four.

The larger point involves the differences between simply viewing moving pictures and actually creating them. To what degree can designing with video, merged with the idea of ambiguity, lend itself to a study of perspectives and multiple points of view? Work carried out over the years in the Interactive Cinema group at MIT's Media Lab has influenced my thinking about video and perspective-taking. The use of "spreading activation networks" and the "continuity engine" allows for different points of view to be explored through the running narrative of a story. Ali Mazalek's, "Tangible Interfaces for Interactive Point-of-View Narratives," deals specifically with how a story can be experienced through the different perspectives of characters within that story (Mazalek, 2001). For Mazalek, keeping the plot of the story intact while viewing that storyline through different perspectives was central to her thesis.

The difference here is how video can be used by teenagers from the *bottom up*. By bottom up I mean video images captured and edited by kids. For this study I am less interested in complex plots, and more interested in a short vignette that begins to show that things can be seen in different ways because, "the flashing of an aspect on us seems half visual experience, half thought" (Wittgenstein, 1953, pg. 197). To accomplish this the teenagers at the South Boston Computer Clubhouse moved beyond being consumers of media (i.e. watching *Zea*) and became producers of media. Our first production attempt was a short 12 second video called *Füsball:A Study in Perception*, the

*un*ambiguous shots of a füsball table in the Boys and Girls Club "Teen Center"

images that are more ambiguous from the video, "Füsball: A Study in Perception"

object of attention being the füsball table in the "Teen Center" in the basement of the South Boston Boys and Girls Club.

Like all of the videos discussed in this thesis, *Füsball:A Study in Perception* is, in essence, a rip-off of *Zea*. It was meant more as an exercise to learn that where you point the camera will greatly effect what the viewer thinks about. To a novice videographer this is not trivial. Indeed, the teens' first idea was to shoot the füsball table from the side, showing the entire table. Despite the fact that we had long discussions about making the imagery ambiguous, their initial inclination was to just make a video of people simply playing füsball. I made a significant amount of effort to show that they could use the camera to see things not as they are necessarily seen in a natural way. Drawing on the popcorn of *Zea* as an example, I asked the kids if they thought the filmmakers see popcorn in that way. Just as a popcorn kernel simmering in a vat of oil can look like a frying egg, to what degree could we make a scuttling white ball look like a flying comet? This led to a discussion about lenses and optics, as the makers of *Zea* had access to forms of photography equipment that we did not have. Regardless, this led to a good exercise in video development by three teens. They had all been inspired by *Zea* and wanted to make their own version. I see this as a conceptual leap in and of itself. With the wide-screen television playing in the background of the "Teen Center" these teens desired to make a video.

The result did not deliver ambiguity in the way that they had hoped, but it did force them to think of camera use in creative ways, and ultimately gave them a crash course in videography. Not surprisingly, showing the video to others around the clubhouse did not elicit the same visceral response that came from viewing *Zea*. Granted, in postproduction (editing phase) these kids could have added effects to the images that would have obscured what was seen. In chapter 6 I will elaborate on the use of digital image making tools that afford numerous possibilities for creating ambiguity by adding filters (i.e. effects).

Like *Zea,* the kids wanted the video to "reveal" what was actually being documented. A linear narrative will play a larger role in the

development of this thesis. *Füsball:A Study in Perception* represents sketch: more complete video projects that examine the possibilities of perspective and perspective-taking through the use of percept-concept relations will be discussed. The point I would like to make here is that <u>viewing</u> *Zea* and <u>making</u> *Füsball:A Study in Perception* brings out the salient features of perceptions role in generating conceptions. Whether it is a true ontology – separating perceptions from conceptions, subject from object, inside from outside – it is useful in helping teens understand that other points of view exist.   Viewing *Zea* and making *Füsball:A Study in Perception* lays the ground work for this kind of social study. It also necessitates understanding methods of design and the characteristics of digital video.

SOCIETY, MIND, MATERIAL

THIS THESIS ATTEMPTS TO DEMONSTRATE HOW a particular material – digital video – can bring together elements of the social world and elements of the individual mind. In this chapter I detail the framework that supports this nexus. This support is based on an examination of how people see the world as they do, and how these *perceptions* can be viewed by someone else. I give some history of its study, drawing mainly on the philosophy of perception and the psychological development of the ability to both perceive and conceive that which someone else is perceiving and conceiving. (section 4.1). I then describe how one might enter into this discussion while working with kids, namely teenagers. Here, I give examples of a design-oriented approach that emphasizes the creation of artifacts (section 4.2). These artifacts take the form of digital videos and I justify why this medium is appropriate for the themes I am addressing: Namely, because it is a powerful medium for adolescents (section 4.3).

4.1 Perception, Conceptions, and Perspective – the Very Ideas

THE *UDANA* IS AN ANCIENT TEXT THAT not only outlines the major tenets of Buddhism, but also introduces some key philosophical themes. The genius of this text is found in the way it foreshadows many important debates in the *Western* philosophical tradition. Chapter VI - the *Jaccandha* - details how six blind men are summoned to touch an elephant, from different positions around the animal. The different verdicts regarding the creature's essence creates vast disagreements and a violent fight soon erupts between the six men. The fabricator of this situation – the 'Blessed One' – observes, "Who attach themselves to methods of analysis, And perceiving only one side of a case, Disagree with one another" (*The Udana,* pg. 96.) The parable is certainly about how we go about discovering truth – the "method of analysis". It is also about the Nietzschean edict regarding 'more eyes, a more complete concept'. But it then this begs the question – would the problem for these six men be resolved were they able to see?

Viewing the film *Zea* highlighted some of the same complexities raised by the parable of the elephant and the blind men. Up to a certain point in the film there is vast disagreement about what is being perceived. What the phenomena looks like we can agree upon, but we are uncertain about what it actually is. In the case of the six men and the elephant, the 'Blessed One' has told them it is an elephant beforehand, so they have a priori knowledge. But the essence of the elephant is up for grabs. In the case of *Zea* there is a tremendous amount of agreement regarding the essence of a close-up of a simmering popcorn kernel. Phenomenologically speaking, a kid might say that the blob (a kernel) is yellow, etc. I don't want to get into the problem of qualia – Wittgenstein once said, "There is no such thing as a phenomenologist but there are phenomenological problems" (Wittgenstein, 1977, pg. 9) – the point here is that there is very little agreement about what the objects in *Zea* are. In one case knowledge is formed in an *a priori* fashion, in the other *a posteriori*. But in *both* cases – the parable, watching *Zea* – local sensor evidence is used to draw some conclusions about the whole. This local sensory evidence is used to frame an overall understanding of the object in question. This highlights the fundamental relationship between percept and

concept, namely the way that percepts and concepts can be intertwined and sometimes confused.

The relationship between these two examples is not opposed but they do differ. Basing beliefs on local sensory information – perception – leads to much confusion regarding the understanding of the whole. But to what degree can a global understanding – conception – distort the perception of parsed elements of that whole? An illuminating observation from Henri Bergson's *Matter and Memory* establishes this point: "We start neither from the *perception* of the specific nor from the *conception* of the genus" (Bergson, 1988, pg. 158, emphasis added). Of course it is difficult to say exactly how perceptions are intertwined conceptions. This difficulty is grist for the philosophical mill – the Buddhist *Udana* to Plato'*s cave* analogy, and all the postscripts thereafter. (Danto, 1997; Maund, 1988). An obvious point to make is that our perceptions form our conceptions. What we see is what we get – sort of. A more difficult area of analysis is to what degree do our conceptions inform our perceptions? That is, how does our perspective (in the mental sense) help us (or not) perceive what is out in the world (Dennett, 1991)?

Without answering these questions overtly, the *outside in* approach to this project that I espoused in the first chapter tries to highlight one aspect of the relationship between perception and conception. Starting from the *outside* and working *in* towards personal identity puts perception first. In *The Primacy of Perception*, Maurice Merleau-Ponty stressed, " We never cease living in the world of perception, but we go beyond it in critical thought – almost to the point of forgetting the contribution of perception to our idea of truth" (Merleau-Ponty, 1964, pg. 3). Relying on the camera – an *outside in* approach – will help bring primacy back to perception in so far as it will help kids bracket their own point of view to understand others.

Just as the study of the understanding of perception and conception plays a large role in the philosophical canon, it has become a particular focus in the domain of psychology. Beginning with Piaget's well-known "three-mountain" experiment (Piaget and Inhelder, 1956) and continuing to more recent incarnations with the *theory of mind* theory

(Wellman, 1990). For a review of the former see Ackerman, 1996; for a critique of the later see Chandler, 2001.

There is a very practical side to these investigations, looking at how the ability to grasp a point of view differs from one's own supports our morality (Kohlberg, 1984; Johnson, 1986; Selman, 2003). This thesis does not aim to answer questions regarding the development of *perspective-taking* abilities in teenagers. It does not outright promote *perspective-taking*, *perspective coordination*, or what the theory of mind camp calls *mindreading*. I don't make claims that participating in this workshop will help a teenager develop their moral understandings. Rather, it tries to instill in others the idea that perceptions can inform conceptions while conceptions inform perceptions.

Understanding the relationships between perceptions and conceptions is a building block for the understanding that it is possible for an individual to have a different point of view. This, in itself, is a powerful idea to the extent that the idea makes social interaction if not robust, then at the very least possible. The technologist and educator Seymour Papert defines a *powerful idea* as an idea that is useful, has strong connections to other ideas, and has a rich history (Papert, 1980; Bers, 2001). Never being certain of the other's perceptions and conceptions is a dilemma for human evolution: The psychologist Nicholas Humphrey goes so far to say that our social intellect was far more of a factor in human evolution than our ability to survive in the physical environment (Humphrey, 1976). The philosopher Radu Bogdan's application of *meta-mentation* in his book *Minding Minds* has a salient introductory point: "The most challenging mental problems facing primates are other primates, not stones or sticks or even other species" (Bogdan, 2000, pg. 17). If Humphrey, Bogdan, and others from the evolutionary psychology camp are right, perspective-taking – "the ability to determine mental states of others in order to explain or predict behavior" (Charlop-Christy and Daneshvar, 2003, pg. 12) – is a very critical part of both our development as individuals and our evolution as a species.

workshop participants'
minding minds

Having said this, it is important to note that our social capacities form a very practical part of everyday life: as the world becomes more

global and interconnected new strains are placed on our social skills. Locating "powerful ideas" within our social capacities can help in overcoming personal and cultural differences. I believe that coming into contact with the very idea that people can have different perspectives is a sufficient condition for what the psychologist Robert Selman calls, "socially advanced reasoning," meaning, "reasoning based on the capacity to identify the perspectives …of all the parties involved in a given situation" (Selman, 2003, pg. 19). While this thesis does not try to generate *socially advanced reasoning* in others, it does describe steps one might take towards that end – steps built on the design of video artifacts.

4.2 Mind Design from the Intentional Stance

THIS STUDY RELIES ON THE CONSTRUCTIONIST theory of learning. First put forth by Seymour Papert, constructionism stipulates that the best learning happens through the design of artifacts. Steeped in the constructivist theories of the pioneering developmental psychologist Jean Piaget, a common sight in a constructionist learning environment is people making things, be it a poem or a kite. Papert left the research he was carrying out with Piaget to co-direct the artificial intelligence laboratory at MIT. Along with others, Papert began considering computer programming and robot design for children because the benefits of designing and creating an object that exhibited behavior would amount to a form of reflexive learning. As Papert (1980) writes in his seminal book *Mindstorms*: "Thus teaching [a programmable object on the screen, or a robot] to act or to "think" can lead one to reflect on one's own actions and thinking:

> And as children move on, they program the computer to make more complex decisions and find themselves engaged in reflecting on more complex aspects of their own thinking (Papert, 1980, pg. 28).

In large part, the kind of work Papert is fond of – and trying to make accessible to young people – is a form of *mind design*. Mind design is, "the endeavor to understand *mind* (thinking, intellect) in terms of its *design* (how it is built, how it works). An 'experiment' in mind design is more often an effort to *build* something and make it work, than to observe and analyze what already exists" (Haugeland, 1997, pg. 1). While Papert's initial reaction was, "not for children," over time, "it

seemed plausible that doing elementary AI [artificial intelligence] could give children a new context for thinking about thinking" (Papert, 1993, pg. 169). Papert and colleagues – based first at the MIT AI Lab and then at MIT's Media Lab – developed new construction kits for kids so that they could give behavior to their designs. Whether through programming languages (such as LOGO) or through hardware design (sensors, microprocessors, motors) new ways were developed for people to make artifacts that appear *mindful* (Resnick, 1993).

One major influence on the design of these design-based activities is the neurophysiologist Valentino Braitenberg. In his imaginative text, *Vehicles: Experiments in Synthetic Psychology,* Braitenberg differentiates between *uphill analysis* and *downhill invention* (Braitenberg, 1984). In short, just looking and analyzing something – in this case, mind – is a more difficult task than building it. This is the central point of constructionism, whether one is building something that is *mindful*, building something that simulates an ecological process, or utilizing a particular scientific concept to achieve a functional end of some sort, be it a musical instrument or a kinetic sculpture. These artifacts play a role in the *discourse* of a learning situation. In addition, placing an idea *in the world* gives others the opportunity to reflect upon it. A particular salient feature of the constructionist theory of learning is the concrete nature of physical (or digital) constructions.

a poster prepared by a seventh grader in New York City displaying the object under scrutiny (pill bug), a designed robot that incorporates some of the traits of a pill bug, and a physical depiction of the central nervous system

Having representations in the world for others to interpret (think of kids watching kids watching *Zea*) gives people a greater opportunity to take an *intentional stance*. The philosopher of mind Daniel Dennett delineates between three ways of approaching the world. One is the *design stance*, whereby one focuses on how something is designed, or put together. Another possible stance is the *physical stance*, where one actually looks at what the object of concern is made of. As the image to the right illustrates, kids (in this case a seventh grade class in New York City) can study the characteristics of the mind of a pill bug at the neuronal level. On the other hand, the same kids can design a device that behaves like the pill bug, thus bringing them a little closer to what kinds of elements are at play in the pill bug's behavior. The

physical analysis embodies an uphill approach, while synthesis through design ideally takes one downhill.

The last stance that Dennett identifies – the *intentional stance* - goes like this:

> First you decide to treat the object whose behavior is to be predicted as a rational agent; then you figure out what beliefs that agent ought to have, given its place in the world and its purpose. Then you figure out what desires it ought to have, on the same considerations, and finally you predict that this rational agent will act to further its goals in light of its beliefs (Dennett, 1987, pg. 17).
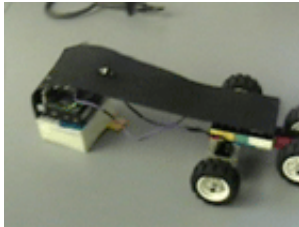
a machine exhibiting the tendency of a pill bug to curl up under certain environmental conditions

It is difficult to grasp the point of view of a pill bug, if it even has one. The intentional stance is most effective when used towards more cognitive agents. The intentional stance also demonstrates how the *outside in/inside out* can be mediated. The ability to take the psychological perspective of another person involves an "as-if" function used in *pretending* to be in another person's place (Fuchs, 2002). In this sense we try to put our selves 'in the other person's shoes' – but *not* entirely. (For clarification, it is impossible to fill the shoes of a pill bug.) To take your perspective is not as simple as perceiving the world from your physical point of view as you read this text. In doing so I would be bringing only my experiences to the situation. In essence, I have to *bracket off* some of my perspective – my conception of the world – in order to understand how you might be conceiving of this text. Aside from forcing me to carry out multiple drafts, this point gets across the *outside in/inside out* model that supports my thesis.

Using the intentional stance, in a design-oriented way, seems to me to bring together Braitenberg's downhill synthesis and uphill analysis in a novel way. It is not easy to take the intentional stance. At the moment it seems that constructing something that exhibits the intentions of others and reveals some of the wide range of human belief and desires is far off. The middle ground I seek involves the "mind design" of individuals as they take the intentional stance to understand that other people might approach the world through a different point of view. To achieve these ends I rely on the design and construction of video works that purposely get a viewer to shift their

perceptions. To my mind, these artifacts tie together some degree of synthesis with some degree of analysis. On the one hand, a teenager is designing an object whose purpose is to radically shift a viewer's conception of what they are watching. As we will find, designing such artifacts requires a significant amount of analysis.

4.3 Getting Some Television Together

WHAT IS THE NATURE OF THE ARTIFACTS TO BE constructed here? In my view the material that binds an examination of the social implications of varying perspectives with the learning that can come from a design activity is the *moving image*. Images in general play a compelling role in the life of the teenager. But as a medium video offers a level of excitement, in so far that it taps into experiences that are part of the daily life of a teenager – say nothing of everyone else. Television, movies, video games, all competes for our attention. Like many, I firmly believe that images – particularly moving ones – radically shape our thinking about the world and about ourselves. Whether it is the 19th century zoetrope or the Internet, moving images force new considerations of both our internal and external lives (Crary, 1991; Turkle, 1984). Writing about the power of cinema, the theorist Jean Baudrillard, in typically poetic fashion, states, "You cross the desert as if in a western; the metropolis is a continual screen of signs and formulae. Life is a traveling shot, a kinetic, cinematic, cinematographic sweep" (Baudrillard, 1987).

a young child plays with the
moving images
generated by an
"interactive" zoetrope
– designed by the author

As I discussed in my comparison of watching *Zea* and making *Füsball: A Study in Perception* there is a great deal of difference between consuming images and producing them. This fits well with the constructionist theory of learning. Another paradigm for the power of children producing their own images can be found in the artistic production of Tim Rollins and the Kids of Survival (K.O.S.). Out of an art studio in New York's South Bronx, Rollins' *Art and Knowledge Workshop* seeks to build original imagery based on texts the workshop members read, whether it is Kafka's *Amerika*, Orwell's *Animal Farm*, or Hawthorne's *Scarlet Letter*. Part Beuys' art academy, part Warhol's factory, Rollins seeks to subvert Western institutions (the literary canon, the art gallery) in an effort to empower youth. The

project I am now describing seeks to do the same, by laying the foundation by which the institutions that encompass the moving image can be leveraged for social good. In discussing his empowerment in a 1989 interview, 18-year-old K.O.S. member Richie Cruz states, "I guess art is one of the only ways we can show our point of view, about how we see the world. We don't own a T.V. station, but we can get a painting together" (Lippard, 1989, pg. 95). Interestingly, owning a T.V. station is more like owning an art gallery, while "getting a painting together" is more like making video works that can be shown on television. This last point I will turn to in chapter 7.

Rollins and his workshop grew in notoriety during the New York art boom of the 1980's and early 1990's. Also at this time there was a growing ubiquity of devices for gathering images. Granted, these devices have been around for over a century, but a recent revolution – brought on by progress in digital technology – makes image-making tools a viable medium for empowering kids (Negroponte, 1995). At the end of the film *Hearts of Darkness*, a documentary that follows the making of Francis Ford Coppola's stirring film *Apocalypse Now*, Coppola reflects on the state of filmmaking twenty years after making that classic, as well as others, including *The Godfather* and my personal favorite, *The Conversation*. In discussing the nature of filmmaking, the director points out that the ubiquity of small, relatively affordable digital video cameras will allow people to construct their own cinematic narratives with relative ease, compared to a time when procuring a high-quality motion picture camera required a significant amount of financial backing. A casual walk along the street will reveal the partial truth in this statement, as teenagers use video cameras to record outlandish, daredevil stunts performed on skateboards. Tapping into the ubiquity of this medium makes sense, not only because it offers more opportunities for people to become designers, but also because they can become – *eventually* – designers of conceptually meaningful artifacts.

The relatively low cost, portability, and ease of use of digital video cameras and laptops allows for a *quick and dirty* approach to video design – design that has (some) conceptual value. Here's a case in point: While sitting in the home of one of my workshop participants

we watched a music video program on *Black Entertainment Television*. *BET* plays a large role in the life of this 18-year-old. It seemed to be his news and cultural information source rolled into one. I suspect that this is the case for many adolescents across America, if not the world. During a music video – maybe featuring Jay-Z, maybe Kanye West – a particular visual effect was employed to make the hip-hop star look like he was rapping alone in a room one moment, then in the next moment a large group of people "popped" into the scene, seemingly from nowhere. Wanting to know how this was done, the teenager and I recreated the effect right there in his living room, using a small digital camera and my laptop computer. The process took no more than two minutes, from image capture to editing to presentation. The simplicity of this experience speaks volumes about the relationship one can have with media. The loudest point is that using media effectively removes the mysteriousness of the very experiences that are so prevalent in this teenager's life. He was able to engage in the process of making a video that pictured him sitting alone one moment, then with me standing behind him in the next. (See images at right.)

despite poor image quality,
one can get a sense of someone appearing in the frame automatically, though technically achieved in a relatively short time span

In the evolution of using video with kids, what is the ubiquity of new digital video technologies is certainly a sustaining force. I believe that access to these technologies, while still limited to some because of price, will enhance the creative thinking of kids. While paradigms for using video with kids are still being shaped by this ubiquity, earlier paradigms can be found.

The real technological breakthrough with video occurred in the early 1970's with the introduction of the half-inch Portapak, a small analog video camera. While still analog, the Portapak allowed the user to make moving images in a relatively affordable way, outside of the confines of a television studio. A surge in video documentary, video art, and community-based television commenced. Prior to this time, video technology grew as television itself grew. The last years of President Kennedy's life – marked by an infamous debate with Richard Nixon in 1960 and his assassination in 1963 – saw exponential growth in televised images (the sweat *visible* on Nixon's brow, the *Zupruder 8mm film*). While the "official" video institutions

(i.e. Walter Cronkite) grew as technology progressed, so did underground art groups that used video for self-expression. (See the first part of Hall and Fifer, 1990, for a complete history).

The *Raindance* group was a collection of artists based in New York City in the 1960's and 1970's. With Beryl Korot and Phyllis Gershuny as editors, Raindance published a journal entitled, *Radical Software*. While the journal only lasted for a few years, it became, "…underground video's chief information source and national networking tool…"(Boyle, 1990, pg. 52). *Radical Software* was not just concerned with media literacy – all of the volumes of the journal were pointing towards a media fluency. No where was this more indicative than the very last issue of *Radical Software*. Published in the summer of 1972, the issue was titled *Video and Kids* and was:

> Concerned mainly with the use of video for educating children, and sensing a community-wide feeling of doubt about goals and methods, they called together a conference of educators and video activists who shared their concerns, and challenged them to explicate their own work and goals (from the *Radical Software* website, http://www.radicalsoftware.org/e/volume2nr6.html).

cover for the last issue of *Radical Software*, vol. II Number 6 "Video and Kids" Summer 1974

With article titles such as, "Implications of the New Television for the Open Classroom," "Aesthetics of the Portapak," "Action for Children's Television," "Introductory Video Exercises" and my personal favorite, "Project T.V.; Video as a Second Language," this issue reflects the view – put forth in all the issues of *Radical Software* – that the best way to understand the media, is to make the stuff that gets seen in media's most popular formats. If the growing of ubiquity of video technology has fed the evolution of kids making video, *Radical Software* and other resources like it in the 1970's nourished that evolution.

While it is hard to tell what happened to the revolution that *Radical Software* was pioneering, it is clear that the evolution it helped nourish would continue to grow. But I'd like to make the claim that the rapidity within which video was used by kids in the early 1970's stabilized somewhat in the ensuing years. Like Stephen Jay Gould and Niles Eldredge's evolutionary theory of punctuated equilibrium (Gould, 2002), video technology – and its use by kids – fluctuates

between a period of rapid growth and a period of stability. My current belief is that we are entering into a period of rapid growth.

Many organizations are springing up around the world that encourages kids to design video works. One that I have personal familiarity is *The Mirror Project* (http://www.mirrorproject.org). Based in Somerville, Massachusetts, this not-for-profit serves as a model for how teenagers can come to understand themselves and their world better through the production of documentary videos. Through *The Mirror Project* adolescents develop documentaries that explore their everyday lives by examining their social, cultural, and economic surroundings. It is my aim to make this thesis part of the rapid growth that is now occurring with video and kids. In concluding this essay I describe my strategy for continuing this kind of work in the future. *The Mirror Project* engages in the creation of traditional video documentaries. The videos carried out in this study are barely traditional in format. They are highly conceptual in nature. In the next chapter I describe my initial steps to helping kids make this kind of work. I introduce the image making technology and activities that will help reveal the complex relationship between perception and our concepts.

PART II – PERCEPTS (MAKING IMAGES)

TEENS, TECHNOLOGY, TECHNIQUES

The following chapters begin to outline and describe work carried out with teenagers at the South Boston Computer Clubhouse. In this chapter, I describe some of the introductory activities and some of the technologies used to carry out projects that help reveal the nature of perceptions and their relationship to conceptions. The primary means to do this was the use of the camera – process and digital, still and video.

The regular participants in this workshop were:

> Sam – 12-years-old
> Sandra – 14-years-old
> Karl – 15-years-old
> Liam – 15-years-old
> David – 16-years-old
> Jayson – 18-years-old

A few other teenagers also participated from time to time, but their attendance was less than consistent so I do not refer to them in this study. This inconsistency, and the small number of participants, I attribute to the problems outlined in the description of the setting in chapter 2. The most consistent members of the group were Sam, Liam, David, and Jayson. I will say more about David and Jayson in chapter 6.

5.1 My Still World

MY INITIAL WORK WITH THIS GROUP OF teenagers at the South Boston Computer Clubhouse was initiated by a photography contest sponsored by the Boys and Girls Clubs of America. The contest had numerous genres for students to choose from – process black-and-white, digital, etc. One category fit well with the study I wanted to carry out: Called "My World," this category of the contest asked teenagers to develop a photo essay about their life. I found this appropriate for obvious reasons – it was asking the contest participant to use the camera to explore perspective.

Note: While the names of the Computer Clubhouse and its staff have remained the same, the names of the adolescents who participated in the workshop have been changed. The same can be said of family members who played a part.

This methodology for storytelling was of the *inside out* variety. The photographer reflects on *their* world and takes pictures of elements found in their life. While the goals of my project are to use image making for the purpose of understanding that other people can have different conceptions of the world, I took the "My World" photography contest as an opportunity to do two things: 1) it introduced photography and image making in general, and 2.) it "primed the pump", giving me opportunities to initiate conversations *about* perspective and *the possibility* that different perspectives can exist. When kids see the perspectives of other kids, as mediated by the camera, they have the opportunity to look at the "stuff" that makes up someone else's world.

To address both of these issues I introduced the work of two contemporary photographers to the teens at the South Boston Boys and Girls Club. Sebastiao Salgado is a Brazilian photojournalist whose work has been exhibited throughout the world. Typically, Salgado addresses deep social problems in his work. Photographing exclusively in black and white, Salgado uncovers some of the most
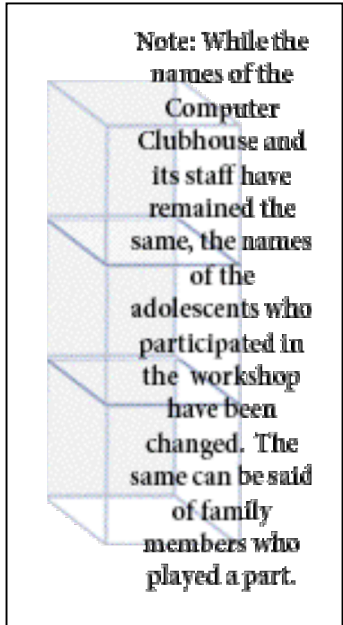
difficult aspects of the human condition. In contrast – though I believe related – the German photographer Andreas Gursky reveals the mundane aspects of consumer society in large format color photographs. Both Salgado and Gursky's photographs are existential in their points of view – both their P.O.V. and the P.O.V. of those people in their images.

the pictures of Sebastiao Salgado displays both human solitude and complex group interactions

the pictures of Andreas Gursky show a different type of humanity, far more "developed" but equally alone

The conversations that ensued between the workshop participants while viewing the works of Salgado and Gursky varied. There were some unifying themes: While looking at the Salgado pictures – generally speaking – the kids wanted to know *what* the people were doing in the pictures. While looking at the Gursky photographs the kids were more curious about *where* the people were. Despite the exotic nature of the Salgado pictures, and the plain depictions of Western culture in the Gursky photographs, these questions made sense. The Salgado pictures are very context-laden, with individuals or groups of people engaged in some form of activity. It is natural for teenagers from South Boston to have interest in what these activities might be. On the other hand, the spatial nature of the Gursky pictures emphasize place. The images often use architectural schemes as a way of magnifying relative smallness of human existence.

Both Salgado and Gursky's work deal with people. Their photos *could* serve as excellent tools for having discussions about conceptual perspective. What is the perspective of the man sitting at the table with the clarinet? How is it different than the perspective of an individual who sits in a crowded restaurant? While some of these issues came up in a general way with Sam, Sandra, Karl, Liam, David, and Jayson, I chose to emphasize the compositional characteristics of Salgado and Gursky's work. Like *Füsball: A Study in Perception*, I was more interested in emphasizing physical perspective as opposed to conceptual perspective.

Highlighting physical perspective – perception in the most phenomenological form possible – is based on achieving one goal: Teaching teenagers that where they choose to point the camera – better, *how* they choose to point the camera – will greatly effect what the viewer thinks about. This is an obvious, yet important point. Again, consider the short film about popcorn, *Zea*. Specific images were chosen for specific reasons, or, at the very least, framed in specific ways. It is this notion of framing that I tried to emphasize at this stage in the workshop. Later I emphasize editing, which – I can imagine – also played a critical role in the quality of *Zea*.

I have observed that it is generally the tendency of kids (young adults, teenagers or younger) to take pictures in rapid-fire succession, with little thought as to what the image might actually look like. Digital technology has exacerbated this problem simply because there is no such thing as "wasting film". At the South Boston Boys and Girls Club two types of digital cameras were in use: A SONY Mavica still camera that records on a 3.5" diskette, and the aforementioned *Intel Play* camera which took both still and moving images. This camera is tethered to the computer while the SONY is portable. Generally, these cameras were in high demand at the clubhouse. My observations are related to comments I made at the end of chapter four – namely, that the ubiquity of image-making devices does not necessarily mean that the quality of their use will also become ubiquitous. This being the case, my goal was to use the "My World" project as a catalyst for slowing kids down where photographic image making is concerned.

This would also lead in the general direction of a discussion about perceptions.

Carrying out the "My World" project simply entailed giving each workshop participant a disposable camera and asking them to take pictures throughout a single day. Being limited to 24 exposures and being required to take pictures throughout the duration of one day would hopefully get Sam, Sandra, Karl, Liam, David, and Jayson to put some thought into their choices of image making. Of course, this was not always the case. With the first round of disposable cameras all of the kids took multiple pictures of their classmates at school. This was not surprising, despite the fact that as a group we had established a loose schedule to follow, a schedule that permitted a couple of pictures every few hours. Of course teenagers are highly influenced by their peers. Recall Ronald Taylor's comment that forming an identity requires losing one's self in others.

Jayson's photograph of a peer – indcative of the initial results of the "My World" project

The second round of disposable cameras was more successful: Sandra, Liam, David, and Jayson brought in a collection of photographs that were a better reflection of their typical daily experiences. With imagery representative of their inside world we could now have better conversations about how the camera could be used to reflect that world. Part of this process is more in keeping with the *inside out* approach that is typical of self-expressive projects. The subject of their photographs in the "My World" project, done right, would be a reflection of their perspective, both perceptual and conceptual. Taking an analogy from the quantum world, conceptual perspective is the elementary particle in the atom that is identity. Perceptual perspective is the fundamental force that holds it altogether. If my hypothesis is correct, and despite the counter-intuitive nature of this approach, focusing on the formal aspects of an image might help teenagers understand that there can be more than one point of view in any given situation. My general view is that when kids become accustomed to framing images better, they start to understand the world from the *outside in*. In doing so they start to understand their own perspective better because they are starting to understand the formal aspects – the fundamental forces – that contribute to someone else's perspective.

The conversations we (Sam, Sandra, Karl, Liam, David, and Jayson, and myself) had centered on images taken from Sandra, Liam, David, and Jayson's home. These were easy and free-flowing conversations about how these different kids lived their respective lives. Initially, I did not restrict the conversation to formal phenomenological elements – despite my goal of encouraging kids to understand the influence of formal elements.

Sandra's Living Room
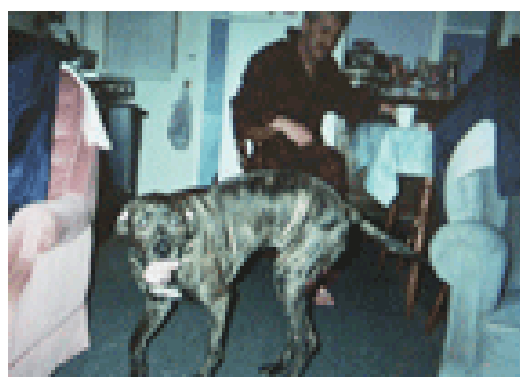
Liam's Living Room

David's Living Room

Jayson's Living Room

Four photographs were interesting in their depiction of each kid's living room. Trying to transition to a discussion about the formal elements of these pictures was difficult; aside from the bedroom the photographs can't get more inside" than a living room.

One observation to be made with these four images is that David and Jayson took pictures of the same place. They are brothers and live with their uncle in South Boston – their work will be expanded upon in the next chapter. The images taken by Sandra, Liam, Jayson, and David's living room are representative of images from the "my World" project. Emphasizing formal elements we discussed the angles in

Sandra's shot, foreground/background relationships in Liam's, and the placement of the subject in David and Jayson's photographs. While still retaining "snapshot" characteristics – i.e. non-composed images – these pictures, and others in the "My World" project can be discussed on formal grounds.

5.2 The "Rule of Three" and Our World

THERE WERE NUMEROUS OPPORTUNITIES TO discuss the particular perspectives that each participant illustrated with their photographs. Making learning personally meaningful is an important tenet of the constructionist theory of learning. If this study is in any way an experiment, it is an inquiry into how a designer's bracketing off of their own perceptions might lead to an understanding that it is possible to adopt the perceptions of others. This is indicative of what I mean by *outside in*. I see the camera as a device that does this quite well, limiting the visual field in such a way that the user of the camera must be very deliberate in how they use it.

an Andreas Gursky photograph is broken up using the "rule of three"

To emphasize this point with Sam, Sandra, Karl, Liam, David, and Jayson, I spent a great deal of time helping them analyze their pictures in terms of composition. To do this I used a simple guideline: The "rule of three" is a common phrase in any basic photography course or guidebook. It simply states that a photograph should be divided into nine separate areas. The Gursky image to the upper left has been broken into these sections. The guideline helps one compose photographs in such a way that the viewer's eyes will be drawn to those areas where the lines intersect. In general, the photographer should avoid placing the "meat" of the photograph directly in the middle of the picture. In the Gursky photograph, the eye tends to travel immediately to the people sitting in the foreground, exactly where the bottom intersection occurs.

a digital picture taken of Donald by David that illustrates his work in photography

With this tool in mind, Sam, Sandra, Karl, Liam, David, and Jayson started looking at their pictures differently. They also went back and looked at how Salgado and Gursky composed their photographs. During his initial work with the video camera, Jayson – the oldest in the group – often equated taking pictures with "hunting", searching for

a great picture. Now all of the kids in the group were talking about "making" a great picture, not just finding one.

On one productive day in late March, 2004, Sandra, David, Jayson, and Donald (a 15-year-old friend of Sandra's who spent one day with us at the club) tried to put their understanding of photographic composition to use. Using a few digital cameras I had brought with me, the kids walked around the club taking pictures of each other and other people. Every ten minutes or so they would come back to the "Cabin Room" to look at their pictures and analyze them for composition. I had a digital projector to make the images quite large, projecting them onto a white board. The teens used dry-erase markers to examine their images with the "rule of three", actively discussing the compositions of the photographs. The sole purpose here was to get these kids to slow down and think about how they are presenting an image to a viewer.

more pictures taken by Jayson, Sandra, and Donald

Without doing too much hand waving, let me say that I do think the making – as opposed to the hunting – of a photograph has more in common with an *inside out* approach to image making. To what degree does this help us understand the point of view of someone else? While we can be certain about their perceptions, how can we be certain about what they see in the conceptual sense? This takes us back to the *ambiguous images* of chapter 3 – just by looking at the image the of "duckrabbit" we are guaranteed that someone might see a rabbit while someone else sees a duck. These are drawn images that depict ontological impossibilities. It is not difficult to make an ambiguous image with a photograph but it is difficult to make an ambiguous image that can manipulate the qualities of "seeing as" that is so crucial for this thesis. Paradox-like, this points to a focus on video; as with *Zea,* the temporal nature of the experience there is a continual noticing of an aspect; the static photograph only has a limited amount of perceptual space for 'aspect dawning'.

5.3 A Model City: Introducing the Moving Image
THE USE OF STILL PHOTOGRAPHY WAS MORE about inspiring teens to take care in their image making process. In focusing on video

this becomes a serious issue. It is too easy to press the little red button on the video camera and just let it take in images indiscriminately. This might seem the preferred method for an *outside in* approach, but there is something to be said to taking care of where the camera is pointing and the general quality of the shot. In many respects, this is the first editorial step in making video. This step is a spatial form of editing, wherein the photographer (or in this case videographer) determines what is seen in the field of view. The work we carried out in the "My World" was a basic introduction to the camera, still and video alike. It helped these teens consider that where one points the camera – as form of *bracketing* or editing – has potential for manipulating the viewer. Introducing video requires an introduction to a second form of editing: unlike the spatial understanding necessary for visually composing images, this second form of editing is much more difficult to grasp.

The second form of editing is temporal, where the videographer (obviously still photography – with the exception of slide shows and the like – is irrelevant) determines in the order in which the images will be seen. The experimental videographer and documentarian Glorianna Davenport suggests that the best way to engage kids in temporal editing is to require them to do in-camera edits (Davenport, 2003, in conversation). The process of in-camera editing involves shooting the images in the order that they are to be viewed. This is a difficult process that requires a lot of forethought. While it is in keeping with the thoughtfulness of design I hope this thesis supports, it so much so that any balance between the *outside in* and *inside out* approach – if such a balance exists at all – will be lost.

To replace in-camera editing we used an off-the-shelf software application, available to most PC users. We used a version for the Apple PowerBook called "iMovie", synonymous with a Windows-based PC version, "MovieMaker". The interface for iMovie looks like this:
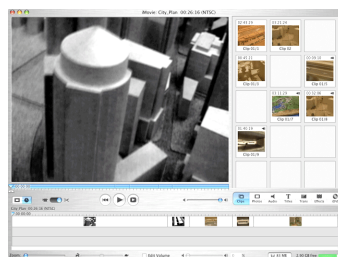
This software uses a timeline approach to editing, placing frames – the top-right part of the interface – into the appropriate place along the timeline represented at the bottom area of the interface. Most kids easily understand this process; putting items in sequential order and understanding how that order affects the whole is standard fare in any ordinal exercises done in pre-school, kindergarten, and up. At its most rudimentary, temporal editing is not difficult. What makes it challenging is the concept of cropping and the idea that you do not have to put video in the order that it was captured on videotape. These elements in-camera editing avoids up front, but at a cost.

Like the cropping that can happen with a still image – using the camera to capture particular elements in a scene or cutting off those elements afterwards – cropping a moving image involves cutting out parts that you *do not* want the viewer to see. This is a fundamental part of the manipulation of media. The two temporal ends of a given video clip cause one confusing aspect of this process. (A clip is an imported segment of video, brought into the digital editing system from the camera.) One can remove frames (time) from the beginning, middle or end of the clip. In addition to cropping time, understanding that video clips can be placed in a different order than they were originally captured in the camera is also a difficult concept. Both possibilities go against the very nature of experience; 'yesterday, today, and tomorrow' – in that order – is one of the most undeniable truths we know. With film or video this truth is malleable.

As a work of art *Zea* introduced the idea of the *ambiguous image*, a great tool for coming to understand that people can have different perceptions – and therefore different conceptions – of the world. But *Zea* also helped introduce the *narrative flow* of a moving picture that utilizes ambiguous images to tell a story. In the case of *Zea*, the story was about popcorn being popped. Of course, I was using it as a tool to tell a story about how different perceptions lead to different conceptions. More than learning how to compose an image, learning how to temporally edit greatly alters the perceptions (ergo, conceptions) of the designer and – for the purposes of this study – the perceptions and conceptions of the viewer.

Not long after the "My World" project and our experiments with photographic composition, I showed Sam, Sandra, Karl, Liam, David, and Jayson *Zea*. They all viewed the film at different times, sparking their interest in understanding the perceptions of others. Sam in particular took a deep interest in *Zea*. While he was not a consistent member of the group, he was very eager to create a *Zea*-like production of his own.

Part of Sam's inconsistency was triggered by his youth; being the youngest member of our working group was not easy for him. Another contributing element to Sam's inconsistency was his creative drive. When I first met Sam he was developing numerous Flash animations on the computer, he had already mastered the basics of "stop animation", and he was an expert-user of "Soda-Play", an online Java-based animation tool. In many respects Sam had a solid foundation for understanding temporal forms of editing. This put him at a higher level of conceptual understanding, while his youth made that understanding appear differentiated from the learning of other in the group. Understanding composition was new to Sam and we developed a project together to help him learn this.

Sam's project involved a model at city hall of the city of Boston. Made of wood, this model takes up the entirety of a large room. Inspired by *Zea*, Sam wanted to make a moving image that showed the model in its abstract forms, then slowly revealed what the moving image was documenting. Images from his video can be found below:
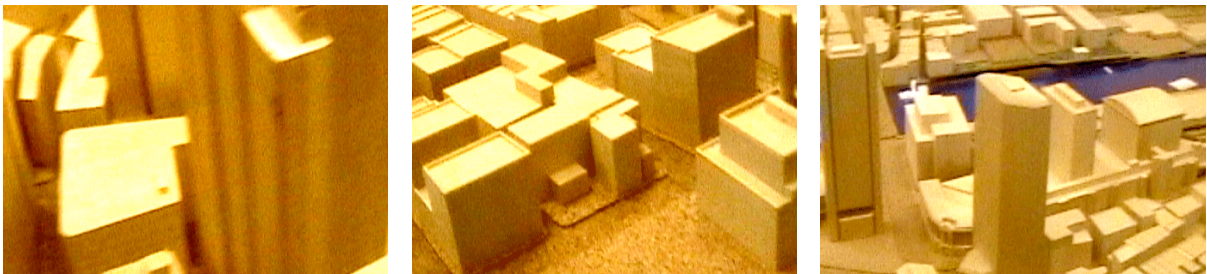
Sam was very focused (no pun intended) and very intent on getting a wide variety of shots. In particular, Sam wanted to take advantage of the abstraction generated by zooming in on particular segments of the model. While Sam was not part of the *Füsball: A Study in Perception*

project that was also inspired by *Zea*, he learned from *Zea* that playing with perceptions ("messing about" in a sense, to borrow a phrase from David Hawkins (1965)) could elicit different conceptions from people. Sam utilized the editing process (in both the spatial and temporal forms) to create a ' dawning of an aspect'. Sam showed his video to numerous people; but the catalyst (for Sam) came when he watched Justin, a friend and member of the Computer Clubhouse, watch his video for the first time. When Justin started to realize what the images were representing, he exclaimed, "It's a city!" I saw Sam's eyes light up. Later, Sam told me more about *his* experience watching Justin watch his video: "You could see it in his face."

By "it" I took Sam to mean the perceptions of abstract forms changing into the conception of a city. If this is true Sam's statement is a provocative observation. My own theory making about how people take perspectives tries not to get bogged down with theories of *theory of mind* (known as the "theory-theory", dismissed by James Russell as being such a good idea that, "they had to name it twice" (quoted in Chandler, 2001, pg. 51)). Having said this, the *theories of theory of mind*, as an attempt to understand when and how human beings begin to understand the fundamental differences between physical and mental entities, does provide some useful insights. Researchers studying the complications caused by autism reveal a great deal about how we come to understand what other people are thinking. Called "mindreading" (the autistic correlate being "mindblindness"), people tend to watch the faces of others to access cues about beliefs and desires. The eyes seem to play a crucial role – people suffering from autism tend to avoid eye contact (Charlop-Christy and Daneshvar, 2003; Baron-Cohen, 1995; Baron-Cohen, Tager-Flusberg, and Cohen, D. 1993;). I'd like to believe that when Sam was watching Justin watch his video he was watching Justin's eyes in particular. I have no proof of this and I never asked Sam about the specifics regarding his experience of watching Justin's face. Yet, this episode between Sam and Justin, mediated by Sam's video of the city model, revealed a great deal about the nature of this thesis. It confirmed what I witnessed when kids watched kids watching *Zea* and says something about the nature of this thesis: In essence, my interest lies in watching people watching people watch things.

THIRD PERSON PERSPECTIVE

This thesis is about establishing a framework for using video in the service of understanding mind and the way minds relate to one another. It uses a particular type of imagery – *ambiguous images* – to help teenagers realize that people can both perceive and conceive differently. My argument is that understanding the complex relationship between perceptions and conceptions can lead to perspective-taking, the ability to take on the point of view of someone else. My understanding of this relationship comes from a kind of *heterophenomenology* that "neither challenges nor accepts as entirely true the assertions of subjects:

> But rather maintains a constructive and sympathetic neutrality, in the hopes of compiling a *definitive* description of the world according to the subjects (Dennett, 1991, pg. 83).

Recall Dennett's intentional stance, and my view of it as a stance that is supported by an *outside in/inside out* framework. Just as workshop participants are asked to bracket a portion of their perspective in order to gain access to a portion of the other's perspective, so too is my own

perspective slightly bracketed in an effort to understand people who themselves are watching people.

Up until now the video projects I have briefly described have documented objects, in one case a füsball table, in another case a model of the city of Boston. In another case – not discussed in this text – a workshop participant made a video about sneakers. In all cases the narrative qualities of video was utilized to generate a 'dawning of an aspect'. The point is to put teenagers in a situation where they could witness people perceiving imagery that becomes more conceptually evident over time. In this way they could witness people conceiving of what they saw. If my hypothesis is correct, this process can lead to an understanding of the two uses of the word 'see', the one use being to describe what we perceptually see in the world, the other use referring to contents within the 'mind's eye'. This logic was formed by the influence of *Zea*, in the way that it slowly reveals its conceptual contents and in the way it elicits visceral response from a wide variety of viewers. Yet, these videos – *Zea, Füsball: A Study in Perception*, and the video of the city model – were ultimately about objects that in themselves do not have beliefs and desires. In short, a piece of popcorn, a recreational game, a model, and foot wear, do not have *intentionality*, or aboutness. In contrast, people do, and making them subjects of a video that uses ambiguous images – and strips away that ambiguity with a linear narrative – brings greater complexity to *playing with perspectives*.

6.1 *"If I'm In The Way I Don't Care"* – The Production

JAYSON IS AN 18-YEAR-OLD MEMBER OF the Computer Clubhouse. I first met him in early February, 2004. Not long after meeting him, I met his 16-year-old brother, David. In first meeting Jayson it wasn't hard to figure out that he had some form of learning disability. My own interpretation of Jayson is that his disability ranged somewhere between an extreme form of attention deficit disorder and a mild form of Tourette's syndrome. I eventually found out that, according to the Commonwealth of Massachusetts, the later was true. Because of this Jayson had a hard time engaging in projects at the clubhouse. The clubhouse coordinator Claire Newton informed me that Jayson had never finished a project. His brother David was

much different than Jayson; quiet and cautious, he was not a consistent member of the Computer Clubhouse at all. Preferring to lift weights in the "Teen Center", David only started hanging out at the clubhouse when I started working on image making with his older brother along with Sam, Sandra, Karl, and Liam.

Jayson and I first started working together while Claire Newton was engaging members in a T-shirt making activity. This project ultimately became the first one Jayson ever finished at the clubhouse (not because of my explicit doing, but because of the additional help of another clubhouse mentor). The T-shirt was an iron-on image of the hip-hop artist Eminem. Jayson and I bonded over popular music: More importantly, I seemed to be the only adult who was tolerant of his constant verbal exclamation, "That's gangsta!" On the other hand, David and I bonded over sports. In addition, I consistently helped him with his homework, though, truth be told, his geometry assignments were a little beyond me.

Through March of 2004 David and Jayson participated in the image making activities I was presenting. They enjoyed learning how to use the cameras, and they enjoyed learning new pieces of software like PhotoShop and iMovie. They became the most consistent teen members of the clubhouse, coming every day and eagerly awaiting new ideas and inspiration.   More importantly, I saw how developing confidence with the technology was helping them develop confidence in other domains of their lives – particularly in their relationships with others.   Jayson's tendency was to push people away with his boisterousness while David's reticence also led to some alienation. I would never make the claim these ideas and activities – thinking about the differences between perception and conception, engaging in the design process, and learning about photography and digital video – could contribute to a radical change in Jayson and David's personality, but they appeared to become more reflective of life and their relationships as time wore on. Of course, this could just be a consequence of me getting to know them better as time wore on.

The real breakthrough in working with Jayson and David came on April 2nd, 2004. The St. Patrick's Day parade was taking place in

South Boston; as a fairly significant event in that community it was a good opportunity for capturing interesting images and working on the idea of 'aspect dawning'. David and Jayson had already done about a month's worth of video work – they were at the very least familiar with the video cameras we were using. While they had limited proficiency with the editing software, they were the primary creators of the video *Füsball: A Study in Perception*. David and Jayson's St. Patrick's Day video, entitled, *If I'm in the Way I Don't Care*, was very successful in revealing some of the conceptual themes that interested me. In addition, I was able to watch them design a video about perceptions and conceptions from the *bottom up*, incorporating the value of *ambiguous imagery* in the work.

David (top) and Jayson video taping the South Boston St. Patrick's Day parade

Jayson and David lived on L Street, right along the East Broadway route of the South Boston St. Patrick's Day parade. David and Jayson used separate cameras to shoot their video. There is no question they were using some of the techniques they had learned from our still photography work, illustrated by some deliberate (self-reported) composition of the imagery. Yet, it *is* the case that for the most part Jayson and David simply left their cameras running for the duration of the parade. Three hours of footage confirms this. While it is clear that some thought went into image capture, it was the editing process that contributed the most to their video. Working for a solid month on editing the project, from the beginning of April to mid-May, two to three days a week, Jayson and David were able to utilize the power of video – both videography and the editing process – to create a compelling story that captured the interest of others and revealed the schism between perceptions and conceptions. Through hard work and commitment David and Jayson were able to break apart their footage in a non-linear manner. This was interesting to watch because my original hypothesis – and the software I had designed to test it – argued for a universal non-linear experience. That is, not only would the designer have a non-linear experience constructing the video but the viewer would *also* have a non-linear experience watching it. Ultimately, I came to the conclusion that a non-linear experience for the designer was a necessary condition for coming to a better understanding of the work. Standard editing videography and editing practices provides this. As for the viewer, it became clear that a non-
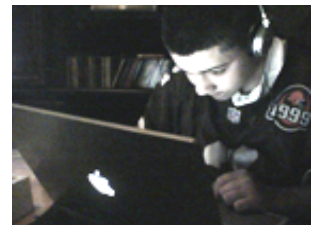
David (top) and Jayson at work
Editing *If I'm in the Way, I Don't Care* – David at his home and Jayson in the "Cabin Room"

linear, interactive experience – in this instance – was not crucial. Indeed, a non-linear experience disrupts the 'dawning of an aspect' that is so central to traditional narrative. Case in point, Julio Cortázar's novel *Hopscotch*. Here the Argentine writer – loosely affiliated with Borges, Calvino, Queneau, and Perec (the writng group known as *Ouvroirde Littérature Potentielle*) – wrote a narrative that consists of 155 chapters. Meant to be read linearly, non-linearly in a random fashion, or in a non-linear way that Cortázar prescribes, the book seems to have its most power when using the first method, treating it like a traditional narrative story (Cortázar, 1966; Motte, 1986).

See the appendix (page 90) for a discussion of the *Interactive Art Construction Tool*. This tool was designed to test hypotheses regarding the non-linear narrative in both construction and presentation of a video work. The appendix also elucidates why the non-linear approach to narrative is not successful in this instance, and illustrates some pitfalls in the design process.

The parade begins with a convoy of fire trucks, blaring their sirens and honking their horns. Jayson and David decided to stand on either side of East Broadway in order to get "multiple perspectives".

Me: How can we use the video cameras to get different views of the parade – different views of the same thing?

David: What if Jayson stands on this side of the street and I'll stand on the other side of the street? It's like what my uncle said [referring to a conversation we had a moment ago with their uncle in their house]. If we're on a baseball field, and one of us stands on first base, and he [referring to his Jayson] stands on third base we'll get different views of home plate.

With Jayson standing next to me, and David standing on the other side of East Broadway, they shot video of the emergency vehicles as they went by. I cautioned Jayson to watch out for vehicles and other people because he was so immersed in his work. Without missing a beat Jayson said in his customary stubborn tone, "If I'm in the way I don't

care." Recorded on the video tape, this statement became the denouement of their video.

When Jayson and David were editing the final piece David suggested they keep Jayson's statement in the video. For weeks during the editing process Jayson balked at this idea, claiming he didn't like the sound of his own voice.

Of course, the irony here is worth noting, given Jayson's neurological disorder, but I urged Jayson to entertain this idea because it added so much to the video. I'm not sure if David felt as I did, but putting the clip of Jayson's voice *at the end* of the video is analogous to an exclamation point to the 'aspect dawning' that we were playing with. In *If I'm in the Way I Don't Care* the emergency vehicles appear like they are indeed heading towards an emergency. Extra footage of roof tops and police officers contributes to this perception. Granted, all along the viewer could infer that it is a parade – just as it is possible in *Zea* to guess early on that the imagery is popcorn in a vat of hot oil. While this obscured the 'aspect dawning' *If I'm in the Way I Don't Care*, it did not quell it. Meant to be read from left to right – a group of stills illustrates the possibility of, *over time,* 'noticing an aspect'.
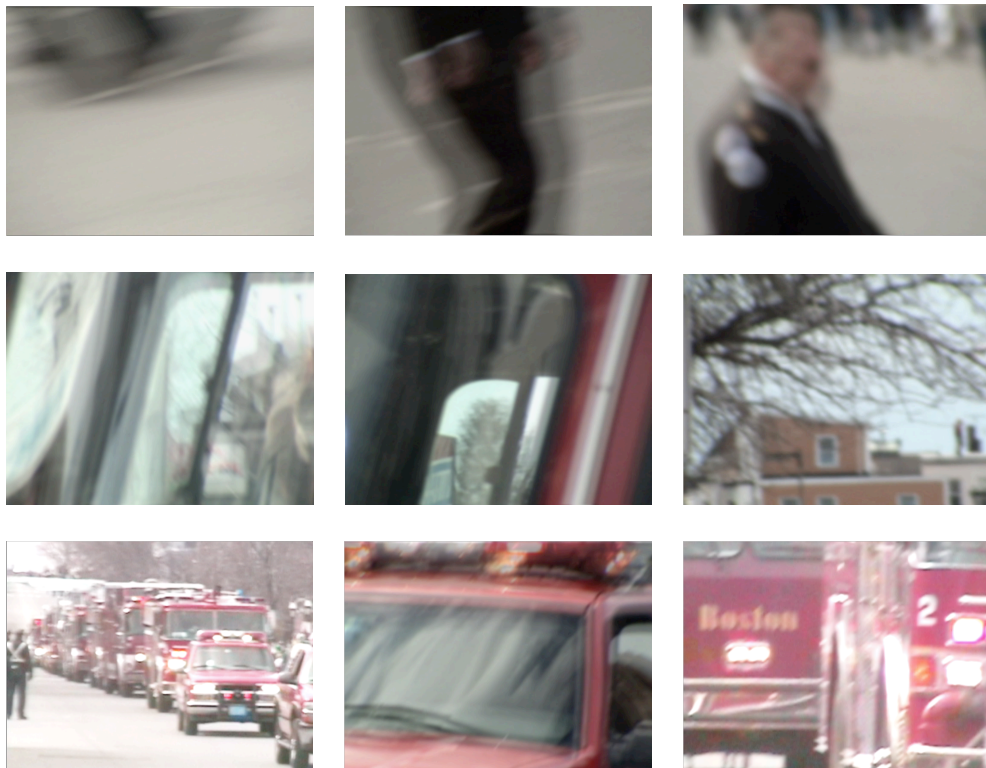
There are numerous formal things to point out here: First, the order of clips that comprise this video do not represent the order in which they were recorded on video tape. Moving them around to maximize the ambiguity of the video took David and Jayson three weeks constantly adjusting the narrative. While this was time consuming I think that it immersed them in the video (ultimately immersing them in the other's experience of the video). Second, it should be noted that all of Jayson and David's imagery was slowed down, to about half-speed. This was a decision they made when they recognized that the emergency vehicles were already going slowly down the street in real time. This was an effect easily added by the "iMovie" software we were using – just clicking on a video clip and toggling a slider bar in the direction of slower, or faster, generates the effect.

the selected video clip to be adjusted for speed
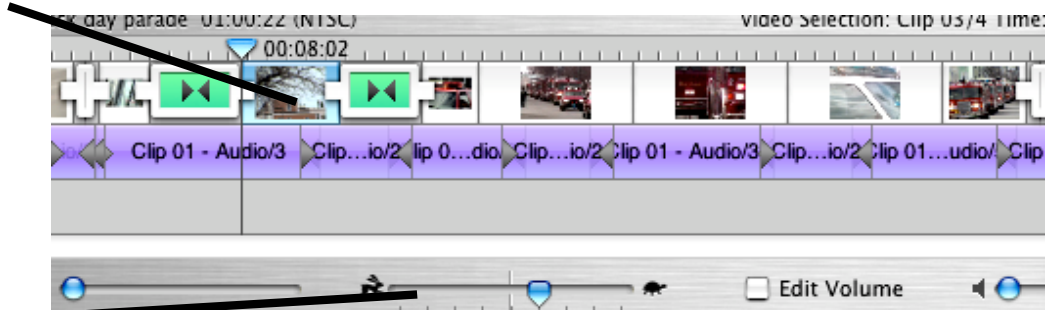
the slider for adjusting speed

Slowing down the speed was a kind of revelation for Jayson and David. They realized that the opening frames of their video – which show a policeman walking – gave some human scale to the whole thing. Seeing the man walk in "slo mo" immediately tells the viewer that the whole thing is slowed down. As a perceptual detail it becomes more difficult to determine the real time speed of the emergency

vehicles in the following frames. Did Jayson or David use terms like 'human scale', 'real time', or 'perceptual detail' while designing this video? Of course not. But they knew the term "slo mo" – particularly David – because of their interest in sports. When the police officer is slowed down, the resulting action is not foreign to them. I believe that the resulting "perceptual detail" was understood to them intuitively. Only later after exhibiting their video and hearing other people's comments did it become explicitly clear to them that the added motion effect added tremendous value to the work.

Third, Jayson and David added a *soft focus* effect on top of the images:

This changed an image **from**   **to**

A subtle difference to be sure, but in many of the images this added a veneer that only increased the ambiguity of the imagery. Adding this effect was simple enough: it involved simply adjusting the slider controls for the particular effect, then dragging the icon for the effect over the selected video clip.
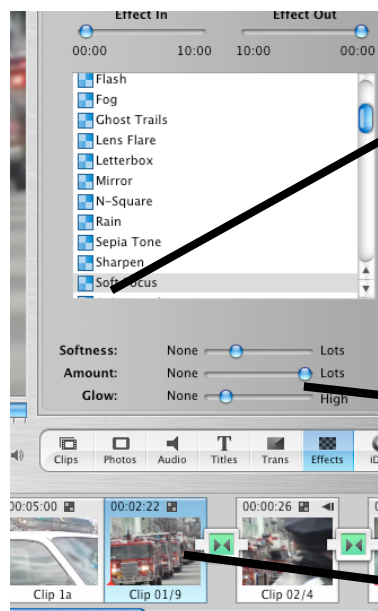
the icon for the effect – in this case *soft focus*

the sliders for giving the effect certain characteristics – in the case of soft focus these were 'softness', 'amount', and 'glow'

the selected video clip that will be altered with the desired effect

The most difficult aspect of this process for Jayson and David is waiting for the various clips to render. Rendering occurs every time you modify one or more frames of a video.   Depending on the number

of frames, the software being used, and the effect being generated, rendering can take significant time. In Jayson and David's case – that is, the way they seemed to experience it – rendering took an eternity.

Fourth, there is the use of transitions. Transitions refer to the way one scene – represented here by a video clip – relates to the scene proceeding it and the scene following it. A "jump cut" is a transition in which one scene immediately 'jumps' from the last frame of one scene to the first frame of the next. Jayson and David decided that more often than not they would use a "smooth transition" as opposed to the jump cut. Once they learned about their options – a "fade", an "overlap", a "cross dissolve" – they opted for the last, cross dissolve'. Like adding effects, adding transitions involved moving an icon over the desired video clips. Here, frames "bleed" into one another as exemplified by:

The previous frames of the fire truck are "mixed" with later frames of the fireman sitting towards the back of the truck. Using this technique highlights many of the issues regarding the temporal nature of the process. Jayson and David started to realize – to a small degree – that they could manipulate time for dramatic effect, in effect using transitions allow one to truncate time. Of course, there is something about the *psychology of media* here.   Just as moving different clips to different positions, adding effective transitions helped David and Jayson realize how manipulating time could add ambiguity to the work.

Indeed, all of the processes discussed thus far involve a form of manipulation that can greatly enhance a work. More importantly, they reflect the focus on design that I stressed when discussing the making of ambiguous images. During the process of shooting the video more attention was paid to getting different angles, different

"types" of shots. Recall that three hours of footage was shot during the St. Patrick's Day parade. 30 minutes of this footage was of the emergency vehicles yet the final running time of *If I'm in the Way I Don't Care* is just under a minute! The upshot of this is that a tremendous amount of thought went into the editing process. Here is the *outside in* approach exemplified: to a great extent Jayson and David pulled video into the camera somewhat indiscriminately, focusing (literally) on capturing perceptions of the parade. It was only during the editing – with significant mentoring from me – how to get the viewer to be thinking the video was about an emergency, then at the very end there is a 'dawning of aspect' and the content is about a parade. In this sense both Jayson and David started to come into contact with the complexities of perception's relationship to conception.

The fifth – and perhaps the most interesting – manipulative element heretofore discussed is sound. Throughout the video one hears the blaring of sirens, which were actually recorded using the built in microphones on the video cameras themselves. This becomes an added perception – *beyond sight* – that greatly influences the conception of the viewer. In *Zea*, the only sound is a Wagner-esque crescendo, which, in my view, adds to the "cosmological" nature of the piece. In *If I'm in the Way I Don't Care*, sirens are sirens. Although tautological, I mean that when we perceive a siren, the thought (in the form of an image or inner speech) that comes to mind is some kind of emergency. Hearing the same soundtrack throughout the video unifies it, making it overall coherent, while visually it is ambiguous. Recall about local or global perceptual information: local sensory evidence can greatly deceive just as believing one understands the whole can affect the quality of perceptions at the local level. Both aspects confound the complex relationship between perception and conception. When Jayson and David decided that a particular sequence of sirens should be cropped (edited) and used throughout the video I believe they were starting to really consider how a viewer might perceive – and ultimately conceive – the whole work.

the soundtrack – attached to a particular clip – can be edited in a variety of ways (spliced, volume adjusment, etc.) right in the timeline
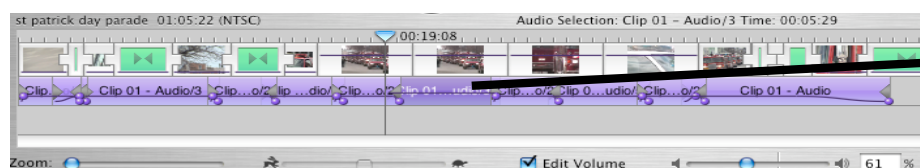
Related to this use of sound is the last scene, where the power of *If I'm in the Way I Don't Care* reaches its apex. In the very last frames of the video – represented by the last image in the sequence a few pages ago – one hears the voice of Jayson throwing caution to the wind, saying "If I'm in the way, I don't care." Hearing this statement adds another layer of meaning onto the video. Without going to far a field let me say that as the "ultimate artifact" (Clark, 1997; Shattuck, 1980) language does make the hermeneutics of *If I'm in the Way I Don't Care* more interesting. As a medium language brings tremendous meaning to our lives, whether it is through social communication or the mechanism of thought itself. The Soviet psychologist Lev Vygotsky built most of his developmental theories around language and there are Vygotskian overtones all over this thesis: From the *zone of proximal development* inherent in my interactions with David and Jayson, to the *scaffolding* provided by both the material and design-oriented approach, to emphasis on social interactions. Like perception for Merleau-Ponty, language for Vygotsky is critical: "Thought development is determined by language, i.e. by the linguistic tools of thought and by the sociocultural experience…" (Vygotsky, 1986, pg. 94). Like the eye watching that is vital to *mindreading*, language supports the *intentional stance*. Of course, humans – and other primates – have devised many supports for the intentional stance. Even other social species, such as dogs, have methods for interacting with one another (Ashton, et. al, 2003). But the human capacity for language has to be one of the more efficient means we know to understand if an agent is rational. Just ask them.

But despite the interpretive power of language, in viewing *If I'm in the Way I Don't Care* and hearing the final words, new layers of meaning are added to the work; new layers of meaning that necessitate new layers of interpretation. In hearing the words one wonders to which they should be attributed to – the creators? Or the fireman in the video? Could the viewer of the work even personalize the statement in some way? How would someone watching the viewer know? I want to examine these possibilities as they are revealed by my observation of Jayson and David's observations of people watching their video. Before doing so I want to make some important claims about the mind

and material element of this thesis and how it was represented by David and Jayson's work.

David and Jayson – through David's suggestion, my prodding, and Jayson's acquiescence – greatly manipulated *If I'm in the Way I Don't Care.* The greatest manipulation was taking the statement "If I'm in the way I don't care" and moving it to the very last scene of the video. That it still had sirens in the background, behind Jayson's voice, meant that it would fit in anywhere within the siren-laden soundtrack. To be honest, I suggested that this would be a good place to put the edited clip. As an experienced adult I had a fairly good sense that this would be an intriguing place to put it. David and Jayson agreed with the decision to move it to the end. At first I doubted whether or not they saw the ramifications of putting it "beneath" the image of a African-American fireman (a rarity) who also happens to be a black man *in* the South Boston St. Patrick's Day parade (also a rarity), who happens to be a black man *in South Boston* (also a rarity, but becoming less so). I had conversations with David, Jayson, and their uncle throughout this entire process that suggests they had some prior inclinations. While I will discuss these in a moment it brings up some interesting issues regarding watching other people design.

The *mind* portion of chapter four discusses how design projects cannot only be used in the service of learning in general, but can help us understand mind (be it a pill bug) or one's own mind. One tries to find out what is going on in the mind of the designer, why certain choices are made, etc. This is not easy to do and depends upon to what degree the designer is being reflective (Hlubinka, 2003). In this instance I had very clear goals about what *I* wanted the participants of this workshop to design. It was not an open-ended activity. Nevertheless, as a researcher it is not entirely clear to me exactly why Jayson and David made the choices they made. How much of it was my influence? Probably a lot. But there were degrees of freedom in all of the projects we undertook. The title of this thesis - <u>Playing</u> with *Perspectives* – points to the many ways *I* am playing with a variety of points of view within the workshop itself. But it is also about the *playing* carried out by the participants of the workshop as they design. The progressive educator Barbara Biber, in her 1951 piece, "Play as a

Growth Process", speaks to the adult's view of children's play as an inner mystery - much in the same way that adults view the "thoughtless" nature of emotions.

> The inner coherence of play is as often based on emotion as it is on logic or action. If it seems incomprehensible, rambling, or slightly insane, it is because we cannot read the deep emotional life of children, because we do not understand adequately how feeling can transform thought, at all ages (Biber, 1984, pg. 191).

Perhaps this is why it so difficult to understand many of the choices children make – because of the degree to which play is a factor in their lives and to the degree play is an enigma. I believe play was a very much a part of this process. Sam, who designed a great video, eventually became distracted from the task at hand when he discovered the possibility of reversing the clip direction with the software we were using. Making clips run backwards augmented Sam's ability to say many sentences backwards: He started recording *himself* saying these inverted sentences, reversing the clip in the software, and listening to it playing forwards. Could Sam's play here fit in well with an examination of the tangled nature of perceptions and conceptions? Absolutely. Did I – as a mentor – have time to help him down that road? Not really. Writing this now, do I wish I had helped him design a video based on forwards and backwards speech? Absolutely.

Aside from *mind*, there is the *material* aspect of David and Jayson's piece *If I'm in the Way I Don't Care*. This aspect is steeped in the manipulation of media – particularly digital media. The overall ambiguity of *If I'm in the Way I Don't Care* – while not being *as* ambiguous as *Zea* – was developed in large part through the use of the digital editing software. The captured imagery does make the piece what it is, but these images merely planted the seed for the work that was subsequently carried out during the editing process. In his work *The Language of New Media* Lev Manovich points out, "…all software for media creation today arrives with endless 'plug-ins' –

> the banks of effects that with a press of a button generate interesting images from any input whatsoever. In parallel, much of the aesthetics of computerized visual culture is effects-driven, especially when a new techno-genre is first being established. [In] countless music videos…effects are applied to the images of human performers. This is yet another example of how the logic of a computer – in this case, the ability of a computer to

produce endless variations of elements and to act as a filter, transforming its input to yield a new output – becomes the logic of the culture at large (Manovich, 2001, pg. 236).

Quoting Manovich at length is justifiable; his comment relates to both *If I'm in the Way I Don't Care* and work leading up to it. Recall my work with Jayson after viewing the music video on *BET*. While we did not use "plug-ins" then to generate the "jump cut" effect, we did use the digital video camera and laptop to quickly duplicate the effect that we had just seen on television. The current logic of the "culture at large" behooves educators – particularly those working with young adults and younger – to embrace both this culture and the material with which it is produced. Those writing in Radical Software in the early 1970's predicted this and it is being carried out by endeavors such as *The Mirror Project*. In large part this is the impetus behind the Computer Clubhouse Network (Resnick, Rusk, and Cooke, 1998). The goal is to go beyond a media literacy and develop a media fluency. While sounding patently cliché, kids – and adults – should not just be consumers of the media-saturated world, they should become producers and creators of the media-saturated world.

In essence, learning *how* to manipulate reality leads one to an understanding of how reality *is* being manipulated. Creating the right kinds of design activities (for the *mind*) and choosing the right mediums (as in the *material*) can help do this. For my own purposes designing with video was used to support a better understanding of the intricate dance between perceptions and conceptions and how it generates an intricate dance between people (that is *the social*). Through making video and watching other people watch it, teenagers come to understand how perceptions and conceptions can differ in different people.

6.2 *"If I'm In The Way I Don't Care"* – The Interpretation(s)

THE LAYERS OF INTERPRETATION IN *If I'm in the Way I Don't Care* – interpretation being the hallmark of perspective-taking – makes it possible for Jayson and David to use the video as a tool for

understanding that there are differences between percepts and concepts. Here's how: After finishing the video – the entire process taking a little over a month, from April 2nd to somewhere in the second week of May, 2004 – Jayson and David showed their work to numerous people at the South Boston Boys and Girls Club.

Kids and adults alike were always impressed with the quality of David and Jayson's video. Claire Newton – the Computer Clubhouse coordinator – went so far as to say, "This could be used in an episode of *West Wing*." Referring to the popular *NBC* television show that dramatizes the doings of a fictional White House, Claire used what I knew to be *her* favorite television show as an quality indicator for the formal aspects of the video. Jayson and David did not know what this comment signified – syndicated re-runs of *West Wing* have yet to start running on *BET*, *their* primary television channel. But they did know that Claire was saying the video was 'good enough to be on television.' This is an important point: I am of the belief that to help young people develop a media fluency it is critical that their productions become part of already established institutions. *Like* Tim Rollins and the Kids of Survival – who saw their art work hanging in established galleries and museums – seeing a video work as part of a medium that they are so familiar with could have profound impact on the young creators. *Unlike* Rollins' project, thinking about kids "making" television has more import because it is an form kids intimately know. There are at least – that I know of – four primary institutions that support video: the art institution (gallery/museum), the movie theater, the Internet, and television networks. If my hypothesis is correct, television is the most powerful for kids. This is a point that I will return to in the concluding chapter.

While formal aspects are always important, it is the content of *If I'm in the Way I Don't Care* that helps support my thesis. The ambiguity of the imagery – augmented by the digital editing process – elicits numerous responses from the viewer. There was a typical response at the South Boston Boys and Girls Club where Jayson and David showed their work to others. The response can be broken into four stages:

immediate prediction • subtle confusion • realization/validation • palpable confusion

These are my terms, my way of reading the experiences of those who watched the video. David and Jayson – in conversation – reported much simpler schema for coming to terms with the experiences of the viewer as the viewer watched their video. Namely, that it was "cool" when people saw the "guy in the truck" and then said something like, "I knew it."

By *immediate prediction* I mean to describe the way almost every viewer at the South Boston Computer Clubhouse immediately predicted that it was the St. Patrick's Day parade. This is a significant part of the culture in South Boston so it is not surprising. While they were correct, *subtle confusion* sets in as the video slowly reveals more and more emergency vehicles, strange images of people walking on the top of buildings, etc. Again, the imagery plays a significant role here, but the soundtrack also supports the ambiguity. It was hard for me to *bracket off* my experiences – that is, my *heterophenomenology* would become an *autophenomenology* – while interpreting the experiences of the viewer. As a school teacher in Lower Manhattan on September 11th, 2001 – only blocks from the World Trade Center site – I witnessed scores of people running up 6th Avenue from my ground floor classroom window just as first period was starting. For me, and many others I know, hearing a large collection of sirens will always be linked to that morning. For the viewer in South Boston it had a similar effect if only because the cacophony in *If I'm in the Way I Don't Care* is unrelenting.

In the *realization/validation* phase viewers had their suspicions confirmed. The scene of a smiling and waving firefighter revealed that the video ultimately could not be about an emergency after all. I don't know if this generated a sense of relief, but the final scene of the video (but *not* the final frames) always elicited an 'Oh,' or an 'I knew it,' or in some cases, 'That's creepy.' Finally, in the *palpable confusion* stage the viewer hears the phrase, "If I'm in the way I don't care" while seeing the image of the firefighter grinning from the truck.

The formal aspects are such that the voice is *in the picture*, in the sense the voice is not simply narrated over the original soundtrack of the sirens. This is a critical because it – in my interpretation and to some degree in Jayson and David's – the quality of the voice makes the viewer think (or feel?) that the voice could be the inner voice of the firefighter. Typically the inner voice of a person depicted in video or film is done with a narration *over* the existing soundtrack. It is difficult to know what the viewer is thinking but one thing is almost always certain: the statement "If I'm in the way I don't care" happens so fast that the viewer rarely catches it on the first viewing. They might *hear* it in its entirety, but the enigmatic nature of the phrase prevents a full development of its conceptual content (I think). The upshot is that the typical viewer wants to see the video as a whole again. Of course, the ambiguous imagery also compels the viewer to do this. The short running time makes this convenient.

If it were easy to know what people are thinking – i.e. what are their beliefs – while they are watching *If I'm in the Way I Don't Care* – the subject matter of this thesis would *not* be interesting. (From my point of view, neither would experience be interesting, and maybe not even possible.) The challenge of relating their perceptions to their conceptions would be – in a word – effortless. Without being too cliché, would we learn without effort? Watching Jayson and David watch others watch their video did not support the same intentional stance – making decisions about the belief/desire psychology of a rational agent – that I have adopted while watching viewers watch *If I'm in the Way I Don't Care*. But Jayson and David did try to figure out what people might be perceiving and conceiving while they watched the video. This was easier because *they made it*. They had an intimate knowledge of the subtleties of the ambiguous imagery, the less than subtle qualities of the soundtrack, the 'Ah-ha' moment

towards the end, and the puzzling nature of the final frames with its manipulated soundtrack. No, they could not take a complicated intentional stance here. But they were considering the *aboutness* of each viewer as they watched the video.

How does *If I'm in the Way I Don't Care* reflect the *outside in/inside out* approach I describe in chapter one? While working with Jayson and David over the course of three months I got to know them quite well. On the morning of the St. Patrick's Day parade I met them at their house on L Street for the first time, meeting their uncle James, a 40-year-old professional chef who was their primary caregiver. Even on that first morning James seemed to have a good sense of what *I* was up to, suggesting during a conversation about our intentions for the St. Patrick's Day parade that, "Taking different views of the parade would be like standing on first base with camera, someone standing on third base, and getting the different views [of home plate]."

Not only did he want Jayson and David to take notes on our conversation that morning (he provided them with little pocket notepads and new pencils as I was sitting down on their couch) but he also wanted them to be proud of their cultural heritage. James is black and from Puerto Rico while Jayson and David's cultural background is diverse in a different way: Jayson and David told me their father was black and their mother was Irish. Towards the end of the conversation that morning uncle James encouraged – in his stern way – Jayson and David to "keep an eye out" for the current Suffolk County (Boston) sheriff – Andrea J. Cabral is the first African-American to be elected to that office.

Could this somehow be the reason that Jayson focused his camera in on the African-American firefighter? After the video was complete I asked Jayson about this. He says he was just taking video and "didn't even see that that guy was black." While the purposefulness of Jayson's videography – and the placement of the images of the firefighter by Jayson and David – say otherwise, it is highly possible that Jayson was just using the camera to take all of the *outside in*. Not long after Jayson and I had the conversation about why he might have captured the footage of the firefighter he saw a movie on T.V. in
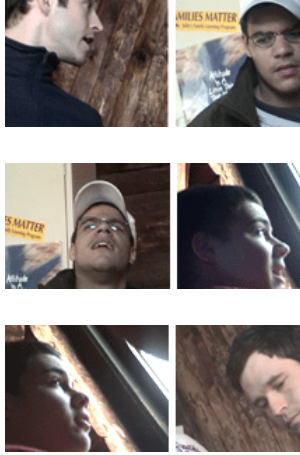
pictures of one conversation with Jayson and David – taken by a brief workshop participant Donald

which the protagonist, who was African-American, would always protest when something was not going his way. I don't remember the name of the movie, but Jayson told me that the protagonist would always ask rhetorically, "Why are you doing that?" and then answer "Because I'm black!" If I asked Jayson to remember to put the lens cap back on the video camera, he would respond, "Why?" with a smile on his face then answer immediately, "Because I'm black!" I don't want to read too much into this word play, but I do wonder to what extent Jayson was taking an *inside out* approach to the world when he said things like this. That is, to what extent was he expressing his perspective? Extrapolating, to what degree did he take this approach in his video project?

As Hans-Georg Gadamer writes in *Philosophical Hermeneutics*: "It is not so much our judgments as our prejudices that constitute our being…

> Prejudices are biases of our openness to the world. They are simply conditions whereby we experience something – whereby what we encounter says something to us (Gadamer, 1976, pg. 9).

We can look at Jayson and David's work with their own prejudices in mind, believing that it was their perspective that determined where they pointed the camera.   Regardless of Jayson and David's *perspectivism*, their work *If I'm in the Way I Don't Care* highlights *perspectivism* in the general sense because anyone who watches will approach it – and leave it – in a different way. A 10-year-old at the South Boston Boys and Girls Club will think of how she got lots of candy at the parade. A high school kid at the Boys and Girls Club will remember that his parents didn't let him go this year. A social worker at the South Boston Boys and Girls Club will think that perhaps the firefighter's smile was forced. Jayson and David saw scores of faces looking at the artifact, registering different perceptions and conceptions. This was an implicit experience, but one that I believe went a long way.

It's difficult to interpret Jayson and David's work and truly understand the forces that helped create it. Any representation must be interpreted. This is why *perspective, perspective-taking,* and *perspective coordination* is so difficult, yet critical. I warned against establishing any kind of polemic between *outside in* and *inside out* as it was just an organizing tool for thinking about how teenagers will engage with the complex relationship between perceptions and conceptions. This thesis relies on a separation of sorts between a perceived physical world and a conceived mental world. As noted, questions concerning this separation of percept and concept have been an age-old philosophical problem. Wittgenstein tried to finish off these problems by putting them under the category of language game, scrutinizing the grammar of our concepts. This is reflected in *his* use of *ambiguous imagery*. Writing around the same time, Martin Heidegger tried to quell this tradition with the hermeneutical approach. In his seminal *Being and Time*, he refers to traditional philosophy – that is, anything before him, maybe anything *but* him – by asserting that, "…what one wants to prove gets muddled with what one does prove and with the means whereby the proof is carried out" (Heidegger, 1962, pg. 247). This may have happened with my own study. Basing this thesis on the design of representations in video that make more obvious the representations in the viewer mind, and observing the designers of those videos observing the viewer, brings multiple layers of interpretation to this text. Add the firefighter's own mental representations and a labyrinth of sorts gets erected. Heidegger recognizes these intricacies in his efforts to understand *Dasein* – being-in-the-world:

> But if we see this circle as a vicious one and look out for ways of avoiding it, even if we just sense it as an inevitable imperfection, then the art of understanding has been misunderstood from the ground up (Heidegger, 1962, pg. 194).

6.3 Their *Dasein* : *"Detector" and* Disappearance

JUST AS I DISCOVERED THROUGH THEIR construction of *If I'm in the Way I Don't Care*, Jayson and David only fleetingly talked about their cultural background. Most of my conversations with Jayson and David centered around their family situation and their lives as teenagers. Both Jayson and David were no longer living with their

parents – for reasons not entirely clear to me. In October of 2004 they moved from their native New Bedford, Massachusetts (with one of the highest poverty rates in the state) to live with their uncle in South Boston. Their uncle James took them in, all three of them cramming into a one bedroom apartment.

This unconventional family life clearly had effects on their schooling too – Jayson was in a special education class at East Boston High School, David was all but failing his classes at Brighton High School. Of the two, Jayson was the home-body, always going home right after school, watching television (*BET*) and waiting for me to call him from the Boys and Girls Club to set up time to spend together. On the other hand, David was often skipping classes (self-reported), always talking about gangs, his "boys" beating up smaller kids, etc. Being the older one, Jayson took responsibility for David's well-being, which David often rebuffed. Jayson's disability, David's flirtations with risky behavior, and a fragile family situation added up to a complex situation.

During our work together I saw Jayson and David become more confident as young adults. Jayson was a particular success: unable to finish projects in the Computer Clubhouse when we first met – with video camera in hand – he was giving directions to kids around the Boys and Girls Club when he wanted to establish a particular shot. David also grew but was always tentative in his involvement. Sometime in mid-May I mentioned to Jayson and David that I was moving to Washington D.C. in August. I wrongly assumed they knew I would not be in South Boston forever. To this news David replied, "You're moving? But what about us?" After that David stopped coming regularly to the Boys and Girls Club or even coming home from school right away when we had plans to meet there. This was frustrating for Jayson, as their uncle always wanted Jayson to wait at home until David came home. This behavior made it clear that the traumatic effects from abandonment seem so powerful that the abandoned will do the abandoning first, given the opportunity.

Over the three months that I knew Jayson and David I worked with them at least three times, if not four times a week. Through the early

spring we worked mainly in the "Cabin Room" at the South Boston Boys and Girls Club. This work involved finding interesting things to record on video and then edit. Sometimes these little projects would have nothing to do with the conceptual material I wanted to develop. Sometimes we *would* focus on gathering ambiguous images that could become less ambiguous over time in the running narrative of video. Once we tried attaching – with "Duct" tape – a camera to a basketball and recording gentle tosses back and forth. Financially risky but a fun way to get the basketball's "perspective". We tried to get a camera inside a füsball table goal.   This "messing about" culminated with *If I'm in the Way I Don't Care* and following the success of that video we developed ideas for more in the same spirit. By the late spring, beginning of June, I was spending a lot of time with Jayson, David, and their uncle James. Most of the time hanging out at their house, either watching T.V. or "making T.V."

The subject matter Jayson and David decided on for their next project explicitly drew from their personal experiences in an *inside out* fashion.   Jayson's bus (what he called "the sped [special education] bus") goes by Logan Airport every morning. As part of his "My World" project Jayson documented the experience of the sun rising over the hangers at the north end of the complex. South Boston is right under the landing path of Logan as well. Anytime we were outside Jayson would take digital pictures or video of the planes. David, while not including it in his "My World" project, constantly talked about the metal detectors at his high school, berating the line he had to wait in to go to class in the morning or saying, "They're fake. I know it. They don't really work at all."

Jayson's imagery of Logan airport for the "My World" project

In combining these two interests – both somewhat fetishistic – Jayson and David conceived of a video that would be about the metal detectors at David's school but would incorporate the airport. On my laptop – in the "Cabin Room" – David made a list of scenes:

- • Scene - People going through metal detector at my school (a close shot, so you can't tell [that they're in David's school])
- • Scene - People going through metal detector at airport (like the scene at my school but different)
- • Scene - Jet taking off at airport

- Scene - Close-up at [sic] metal detector wand at my school
- Scene - Close-up of metal detector wand (airport)
- Scene - Shot of metal detector at school but first a
   close-up that slowly becomes a full image [wide
   angle shot]

There are some interesting things to note about this: One, the concept of the video adequately reflects the ideas that I have been developing around ambiguous images and the use of the camera to create them. Secondly, David's reference to close-up shots is indicative of *Zea*, *Füsball: A Study in Perception*, and *If I'm in the Way I Don't Care* and indicates that David is grasping videography, the importance of composition, and the general ideas associated with image design. Third, David did not put in any scene numbers on his list. With the exception of the last scene (I assume) all the other scenes are interchangeable (assuming that was the intent). If my assumptions are correct, this reflects David's understanding that a non-linear process can produce a powerful linear narrative.

Finally, David and Jayson's conversation about soundtrack relates to their past work with *If I'm in the Way I Don't Care* and says something about their – albeit implicit and perhaps intuitive – understanding of the relationship perception has with concept. They both decided that having the noise of jets taking off throughout the entire video would "be like the sirens" in *If I'm in the Way I Don't Care*. I suggested that they could also include the general chatter and intercom traffic of an airport terminal. Neither of them had ever been in an airport terminal but they had seen it in movies. A day later David came to the Boys and Girls Club with an idea – "In the very last scene, the one that shows the kids going to class, we can include a school bell going off over the sounds of the jets." While not having the hermeneutical zest of Jayson's statement at the end of *If I'm in the Way I Don't Care*, it does support the point that David wanted to get across and demonstrates that he understood of that *that* kind of exclamation point could influence the 'dawning of an aspect'.

Detector, (as I am calling it – David and Jayson never came up with a name –) would, in essence, be a form of social commentary. One interpretation of *If I'm in the Way I Don't Care* could also be social in

nature, if one's perspective can bring in the racial and ethnic complexities inherent to South Boston. I imagine *Detector* could be read on a few different levels; the final scene would reveal that kids have to go through a metal detector in order to get to class. On another level the images and sounds of the airport would reflect the current *zeitgeist*; in a post-9/11world airport security has taken on a different meaning than it had before that Tuesday morning in September, 2001. The imagery – as I believe David was imagining it – would be reminiscent of the ambiguity of *If I'm in the Way I Don't Care.* But as a *pre-critique,* the video *Detector* would – if it was ever made – be far more didactic and less subtle than its earlier cousin.

Detector <u>would</u> have been a very difficult video to make. New TSA (Transportation Security Association) regulations make it illegal to video or audio record inside an airport terminal. I had been in contact with the office of the head of airport security at Logan but these were cumbersome requests to make. Likewise, discussions with the principal at David's school – Mr. Skidmore of Brighton High School – were intermittent. Being in charge of 1000 teenagers did not give him much time for what I'm sure he saw as a frivolous project. I continued to investigate these two fronts but eventually it became all for naught.

On June 22nd, 2004 I called Jayson and David at their house after school. Our plan was to drive over to Logan airport and just shoot some video scenes outside and collect some jet noise for their soundtrack. Jayson answered the phone and calmly pointed out that he had a bit of a problem. As I understand it, the Boston police had entered his uncle's house with a warrant of some sort. The upshot was that their uncle had been arrested and Jayson was not sure what to do. David was already back from school but was out riding his bike. All three of us knew the situation was not good because we all knew about their uncle's criminal record.

In brief, I went to the Boys and Girls Club and spoke with the social worker and Claire Newton. The social worker called the Department of Social Services (DSS). Interestingly enough, David had dropped by the Computer Clubhouse on his bike but, only saying hello to Claire, mentioned nothing about his uncle. When I arrived at David and

Jayson's home I found an apartment torn to pieces by the police. David and Jayson's uncle was not home at the time and presumably they went to his job to arrest him. Jayson was relatively calm but uncertain about what the next moment in his life would be like. David soon came home on his bicycle, continuing to pretend like there was nothing wrong. To make a long story short – but no less complicated – DSS eventually got in touch with David and Jayson's grandmother who lives in Quincy, Massachusetts. Speaking with her on the phone from David and Jayson's house it was painfully obvious to me that she wanted very little to do with these kids. Regardless, she eventually picked up David and Jayson, leaving me her phone number so I could reach them. Both David and Jayson had my phone number as well.

While I had to go to Newark, New Jersey to lead a workshop the following day, I called David and Jayson's grandmother only to find out that they were now with their mother in Fitchburg, Massachusetts. It became clear that David and Jayson's grandmother wanted little to do with her daughter – their mother. She explained that David and Jayson's mother did not have a phone but that "sometime over the weekend" all three would be staying at James' apartment in South Boston. Through that weekend and into the next I daily went to the apartment and went to the Boys and Girls Club. For two weeks I called the apartment numerous times per day, getting no answer. DSS is not required to monitor them because Jayson is 18 years old – this despite the fact they are now being cared for by the same person who either could not or would not care for them the previous autumn. With no phone where they are and no means to make a long distance phone call – plus more pressing matters, I imagine – I have not heard from Jayson or David since.

Alex Kotlowitz's *There Are No Children Here* (1992) is about the lives of two young boys surviving in a housing project on the south side of Chicago. The title of this fascinating, yet tragic portrait comes from the mother of the two boys; she points out that the harshness of the community robs her children of their innocence. Remembering those moments when I stood in David and Jayson's living room after the police had searched it, fracturing their already fractured lives – a living room where we worked on creative projects that might one day

become T.V. *or* just hung out watching T.V. – I can only think about their innocence. Despite their ages – 18 and 16, respectively – the helplessness of Jayson and David's situation is clear. Recognizing their vulnerability is like removing an effect that had been added to a video clip to distort the image. The memories I have of David and Jayson *with* the effect are memories of conscientious, eager, and interested kids who have difficult, complex, and sometimes traumatic lives. The memory of David and Jayson *without* the effect – stripped away by that one disastrous moment in their living room – makes me think that Jayson and David *are* children – in their innocence, yes – but also in their desire to know and create their world.

7

CONCLUSION
– REFLECTING ON *DEVICES OF THE MIND*

THIS THESIS GRAPPLES WITH SOME very theoretical ideas – ideas that have been at the center of an immemorial philosophical tradition. One of these ideas is the complex interaction between percept and concept. The thesis looks at how one can influence the other, and how the particular qualities of that relationship determine how one views the world, both perceptually and conceptually. The thesis also struggles with very practical ideas. These ideas are characterized by a teenager's use of video to understand that people might *see* the world differently based on their perceptions and conceptions. This chapter deals with the chasm that exists between the theoretical and practical issues I raise, namely, how to engage teenagers in a dialogue with such difficult conceptual terrain. My belief is that digital video – as a tool – can do this and I describe future steps for bridging the gulf that might exist between the theory and praxis as I have presented it.

*   *   *

The primary conceptual tool for this thesis is really a language game and the character of this game comes out in the following manner: Clifford Geertz, in his seminal *The Interpretation of Cultures*, describes perspective as, "a mode of seeing, in that extended sense of 'see'…it is a particular way of looking at life, a particular manner of construing the world" (Geertz, 1973, pg. 110). Call the *seeing* in the first instance seeing$_1$, call the *seeing* in the second instance seeing$_2$. Seeing$_1$ this text better with a more powerful light source has no effect on you seeing$_2$ this thesis better (Earle, 1997). The very idea of perspective also suffers from this detail; in one sense there is perceptual perspective, which can be characterized by "the relationship or proportion of the parts of a whole regarded from a particular place or point in time" (Webster's). Perspective in the second sense has nothing to do with physical attributes. Rather, perspective$_2$ relates to mental events – how we see the world in our mind. Perspective$_2$ is based on a large number of factors, including but not limited to personal identity and cultural background.

The very power of our biological visual system alters how we verbalize our experiences of the world – according to Wittgenstein (1953) this alters our very understanding of mind. Scientist Colin Ware brings this point home when he states:

> The eye and the visual cortex of the brain form a massively parallel processor that provides the highest-bandwidth channel into human cognitive centers. At higher levels of processing, perception and cognition are closely interrelated, which is the reason why the words "understanding" and "seeing" are synonymous (Ware, *Information Visualization: Perception for Design*, quoted in Fry, 2004, pg. 34).

So what happens when we add another "eye" to the situation, a third technological eye that augments our rods, cones, and our 'mind's eye'? To what degree can image-making technologies contribute to a teenager's extended sense of the word 'see'? If my hypotheses are correct, the camera – in particular, the video camera – becomes a very useful device of the mind. Not only taking perspectives, but for engaging kids in making things that can differentiate between the two senses of the word 'see' . In this case, the illusion provided by *ambiguous imagery* does this.

With a background in art *and* education I bring *at least* those two perspectives to a review of this work. As an educator, I think the work presented here was successful on some grounds, and marginal on others. To what degree did the teenagers participating in this workshop learn about the ideas I have chosen to focus on? Throughout this workshop we played with perception and conception through the examination and use of ambiguous images. If vocabulary is any indicator of what we know, the adolescents in this project were not using words like 'percept' or 'concept', nor were they using phrases like 'seeing as' or 'noticing an aspect'. Much of their contact with these ideas was implicit, not explicit. More often than not the workshop participants – particularly Sam, Jayson, and David – made complex enough work that they could engage with others in a way that exploited the foundations of different perspectives, namely the way that concepts and perceptions. These are the elementary particles and fundamental forces that make up the stuff of perspective. Understanding it is a route to being able to engage in perspective-taking.

From an artistic standpoint I think the work presented here was also successful on some grounds, and also marginal on others. It is difficult to say what kinds of works were created during this process and where they might fit in an institutional theory of art. That having been said, the teenagers who participated in this workshop learned a great deal about making images and about the different forms of technology for doing so. The perceptual and conceptual nature of the artifacts they designed brought these teenagers into contact with the fundamental notion that good art is a balance between content and formal elements.

Through this process I primarily learned that there is a tension between learning conceptual ideas – in this case learning that something like *perspective-taking* exists – and making art. Art, for all intents and purposes, strives to be original. If various psychological theories are true, the conceptual understanding behind perspective-taking is implicit. Trying to use art to make it explicit is challenging. More importantly, emphasizing the difference between the ambiguity of a

piece of popcorn popping and the ambiguity of a firefighter smiling to a distant crowd is not easy. The conceptual leap is a difficult one to make. What is the firefighter thinking? What is his *perspective*? These are difficult questions to answer with the types of works were creating. The makers of *Zea* did not have to consider the popcorn's intentionality.

This contributes another layer of ambiguity on the work; the mysterious ontology of *If I'm in the Way I Don't Care*. Is it television? Is it video art? Is it any kind of art? Until now, I have only been calling the artifacts created during this workshop "video works". But what kind of work is it? Right now I'm reluctant to confer the status of *Art* on *If I'm in the Way I Don't Care*. In the appendix I briefly introduce the *interactive documentary*, which ultimately led to the work described in this thesis. For the most part I learned a great deal about the power of story and the tradition of documentary. Jayson, David, and myself considered finding that firefighter, showing him the video, and interviewing him about both his experience watching it and his memories of the parade. This would have added firmer supports to the intentional stances of Jayson and David that I was trying to support through *this* project. As of right now I am intrigued by getting back to basics, considering how the documentary – in its traditional sense – can help support learning.

<p style="text-align:center">*   *   *</p>

I believe this thesis is incomplete in two respects. My past relationship with Jayson and David ended abruptly, and I am only beginning to design projects for using video with kids. David and Jayson's plight, while deeply upsetting on a personal level, – and disturbing as an indicator of social problems – is also frustrating in that David and Jayson were unable to complete ideas that they had in mind. Clearly, making *Detector* would have contributed to David and Jayson's learning and my own. Carrying out another project in the vein of *If I'm in the Way I Don't Care* would have allowed them to transfer their knowledge to a new context. In addition, it would have given me as a researcher a comparative project, allowing me to make my claims a little better.

an image from Steve McQueen's *Barrel Roll*

an image from Steve McQueen's *Exodus*

Another disappointment was that I was unable to continue being a mentor to David and Jayson. I looked forward to taking them to MIT, and other cultural institutions around Boston. In particular, I had plans to bring them to the Davis Museum at Wellesley College to show them a small exhibit of the work of British-born film and video artist Steve McQueen. Seeing video work displayed in a gallery would have contributed greatly to Jayson and David's perception of what they were doing. It may have also influenced their perception of who they are – McQueen is a successful black artist. In addition, McQueen's work is related to the pieces Jayson and David had worked on, as McQueen also plays with perception and issues of identity and culture. Two pieces in the show reflect this: In *Barrel Roll* McQueen taped a video camera inside a barrel (this would have resonated with Jayson and David – recall the basketball) and rolled it down a New York City street. In *Exodus,* McQueen follows two men down the street in London as they carry palm trees from a market. While I do not have an image of it, the final shot shows these two men waving politely from a bus. It is very reminiscent of the last scene in *If I'm in the Way, I Don't Care.*

<p style="text-align:center">*   *   *</p>

My experience with Jayson and David was intense. The nature of their lives – unpredictable, traumatic, undervalued – was enlightening. What disturbed me the most is the recognition that Jayson and David had talent – they had the ability to make interesting images – and they were eager to do so. Jayson and David pointed me to my interest in using art not to address social problems, but to actually become part of the alleviation of social problems.

Financial reasons aside, I first became a teacher after art school because of the conceptual art of Tim Rollins. His *Art and Knowledge* workshop was influential because it demonstrated how artists could work on social problems while making art. As a teacher I became bogged down with the day-to-day needs of the job – this prevented art making and I suspect that is why Rollins, as a former teacher, established the *Art and Knowledge Workshop*. My work at the Media

Lab has, in a strange way, brought me back to the kinds of things I was interested in when I left art school. In many respects I want to adapt what Rollins has done in the South Bronx to my own interests.

I would like to start *Devices of the Mind* – a not-for-profit video production company that will engage kids currently in the Washington, D.C. child welfare system. This production company engages these kids in the art and business of making video productions. The first project – called *Inside Inside the Beltway* – will be a collection of short video documentaries, done in a traditional manner. Ranging from three to five minutes in length, these videos will document the lives of people who live and work in Washington, D.C. – not government officials, but the cafeteria worker at the National Air and Space Museum or the groundskeeper at the Lincoln Memorial.

As documentaries, *Inside Inside the Beltway* attempts to access some of the aspects of perspective-taking that I have discussed in this thesis. Like the work discussed in this thesis, these videos will require teen designers to use an *outside in* approach to understanding the social world. Like *The Mirror Project*, the point here is to turn the camera out onto the world to understand the self better. Unlike the work discussed in this thesis, these documentaries will be traditional in format; this is crucial for getting the work presented on traditional television outlets. Artist collectives like *Deep Dish T.V.* and *Paper Tiger T.V.* are alternative outlets for this kind of work. I have started the process of developing *Devices of the Mind* by making contacts with the child welfare agency in Washington, D.C., the Annie E. Casey Foundation, and the George Lucas Educational Foundation.
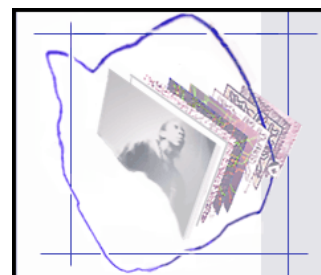
Inside Inside the Beltway is a collection of documentaries created by kids in the Washington D.C. child welfare system

Like Rollins' *Art and Knowledge Workshop* the idea is for *Devices of the Mind* to become an employment source for the kids who are involved. Rollins pays kids in his workshop an hourly wage to develop the paintings that are inspired by the books they read. While he has been scrutinized by some for doing this, I would also like to pay kids an hourly wage to produce videos about their perceptions of other people's perceptions of the world. A short-term goal for *Devices of the Mind* is to make a documentary with two or three kids from the D.C. child welfare system and get that documentary shown on cable

access, or better, a mainstream television network. The long-term goal is to have a video production company that is completely operated – from both the artistic and business end – by teenagers, with the coordinated help of adult mentors. In the mid-term *Devices of the Mind* would be a stable place for teens who lack traditional forms of stability in their lives.

Upon graduation from art school my drive to make art was replaced by a drive to become a better educator. My philosophical interests – which found a comfortable (but perhaps awkward) home in my art – were difficult to reconcile with my interest in working with school children. (Wittgenstein's tenure as a school teacher in a small Austrian village was no help – he was summarily dismissed after abusing children who didn't understand what he was talking about.) Reading Dennett's theories of consciousness one day, I discovered that his reference to the work of Valentino Braitenberg has a link to the world of education the next. As noted, the constructionist theories of Seymour Papert owe their inception to issues surrounding the nature of mind. This particular route came full circle when I first picked up Papert's (1993) *The Children's Machine*; Dennett wrote a blurb for the back. This eventually led to work at MIT's Media Lab, leading ultimately to this thesis.

And now it seems like I've come full circle in a way, developing projects that merge philosophical material with learning through design on the one hand, and the influence of Tim Rollins' *Art and Knowledge Workshop* on the other. Rollins once said that, "Without this, I'd just be another boring conceptual artist" (Jones, 1989, pg. 99). I suspect that the *this* that Rollins refers to is the Kids of Survival and the projects generated by the *Art and Knowledge* workshop. But *this* might also mean the ideas that Rollins is working through on his own – how to get kids to use creative thinking to work through some very rich material.

My two interests – the philosophical approach to the world and other people, along with making things with kids – should be relatively clear. In the last chapter of this text I express a *heterophenomenology*; this *third person perspective* describes how making an ambiguous

series of images with digital video brings two teenagers in contact with the basis of *perspective-taking*. Even within that chapter there are interpretations that express an autophenomenology, whereby I describe things as they are for me. Whether I am looking at the firefighter in *If I'm in the Way I Don't Care* or I am working with Jayson and David on *If I'm in the Way I Don't Care*. In short, it is difficult to separate an *outside in* approach – whereby someone brackets off some of their own views on the world to take in the world in a "constructive and neutral" way – from the *inside out* where one approaches things with their identity and personal experiences at the forefront of their thought.

In his seminal work *Steps to an Ecology of Mind* the anthropologist Gregory Bateson describes one way of relating to the world. Most notably he reflects on the meta-aspects of human consciousness. In an explicit manner, Bateson makes the following pronouncement:

> We have learned to approach scientific problems in a peculiar way: the problems are to be simplified by ignoring – or postponing consideration of – the possibility that the larger context may influence the smaller…our hypothesis suggests that there may be an infinite regress of such relevant contexts. In all of this, the hypothesis requires and reinforces that revision in scientific thought which has been occurring in many fields, from physics to biology. The observer must be included within the focus of observation, and what can be studied is always a relationship or an infinite regress of relationships. Never a 'thing' (Bateson, 1972, pgs. 245-246).

This text sometimes gets mired in an infinite regress of sorts. Watching people watching people watch things – particularly something like *If I'm in the Way I Don't Care* that shows someone watching other people – is not only almost nauseating but also at the center of the problem of consciousness. But trying to negotiate an infinite regress through an acceptance relationship is apropos to this thesis. It is about how people relate to the world, particular how they relate to one another. In this text there are some fundamental relationships: First, it is about work that highlights a group of teenagers' relationships with aspects of society, mind, and material. Second, it is about how other people have reacted to those videos. Third, it is about how the teenagers react to those very reactions, perhaps coming away with an understanding of perception and conception. And finally, it is about a relationship *I* had with two participants in this study, David and Jayson.
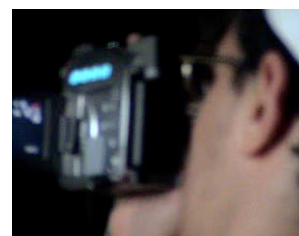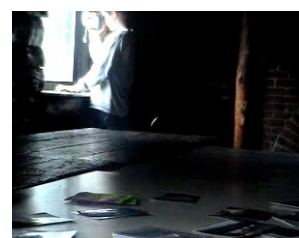
playing with perspectives – scenes from one of David's videos showing Jayson videotaping Liam – who himself is also videotaping people out the window

appendix

the story of the
interactive art construction tool

A.1 The Initial Concept

IACT, OR, "INTERACTIVE ART CONSTRUCTION TOOL," is a software platform for the young artist interested in interactive video and the process of art installation. Designed for novices, IACT combines sensor technologies with video media, bringing both the physical and digital together.

As interactive art becomes more and more common so too are tools for developing interactive art. As a tool in this spirit, IACT strives to bring the interactive art experience to a younger audience. The software will have a low floor for easy entry into the process of making interactive art. It is also intended to have a low ceiling, sacrificing varieties of functionality for superb capability in a single domain.

I envision the IACT system as becoming a part of a traditional art curriculum. As schools begin to utilize technologies in their core discipline areas so too will technology become a part of the art curriculum. The structure of IACT will make it a solid fit in the art curriculum, generating new forms of visual awareness – and ultimately new forms of personal awareness – through the use of new media.
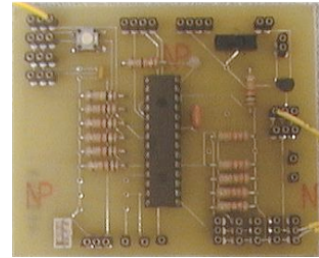
The IACT software is part of a system that allows the physical to be readily combined with the digital. The software provides the programming support for a suite of sensors (light, distance, touch, etc.) plugged into a printed circuit board that utilizes experimental LOGO chip technology (image at right). The board can accommodate up to five sensors, which are in turn controlled by the LOGO programming environment. In many respects, the IACT software can be viewed as an important part of an, "interactive art kit." Such a kit has recently gone on the commercial market. Built by the MakingThings company and sold through the Cycling74 company, the kit utilizes Cycling74's MAX programming environment which already has great appeal in the interactive art making community (see image below, right). As the Cycling74 website states:

the *Logo Chip* – here mounted in the middle of a *"Flow Board "*

For more information on the Logo Chip and Flow Board, see *Zuckerman,* 2004

> MakingThings' Teleo is a new set of hardware tools that allow you build interactive art with Max. Using the Teleo modules, you can use Max to move outside of your computer and build fully interactive physical environments that engage audiences. (from http://www.cycling74.com)

The IACT software should also be viewed as part of a kit for making interactive art. What will distinguish this system from something like MakingThings' Teleo system is the ease of use that both the IACT software and the LOGO-based printed circuit board will provide.

the Teleo interactive art kit

The use of digital video is becoming the norm in a variety of cultural milieus. The most recent development is the arrival of the VJ. Analogous to the DJ in the musical realm, the VJ attempts to create live video performances at a variety of events. While IACT could be viewed as a VJ tool, it strives to help nurture and develop a kind of *interactive cinematic literacy*. The development of this literacy is meant to happen within the context of a particular type of examination: IACT is the center point of a construction kit that brings together video and electronics, enabling youth to create poetic examinations of people, places, and things in their everyday lives.

The popularity of interactive art is fully evident in both the art world and in higher education art curriculums. Bringing this form of expression to a younger audience seems worthwhile, not because it is important that we develop more interactive artists but because it is possible to develop a certain sensibility in younger people. By easily combining video footage with interactivity young students will have the opportunity to express themselves in new ways and learn something about themselves in the process.

A.2 Software as Influence and Inspiration

THERE ARE A NUMBER OF INFLUENCES for the IACT software package. Certain key features of these influences will find there way into the IACT system, bearing in mind that IACT is geared towards a younger audience and a particular learning environment, namely schools. Here, I simply outline the basic features of those software packages that have most influenced my thinking.

A.2.1 • MACROMEDIA DIRECTOR
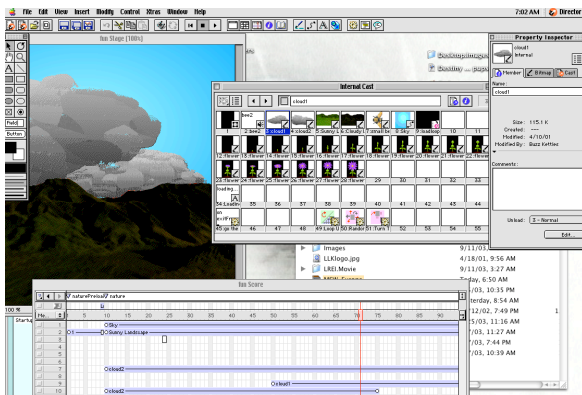
the Macromedia Director Interface

One of the ultimate multimedia tools, Macromedia Director is the primary influence for IACT. Designed initially for graphic designers looking to deliver web-based content with the *Shockwave* engine, Director developed an appeal for those people working in digital video. The movie metaphor that persists in the software – frames, the timeline, stage, etc. – allows for relatively easy construction of video content. So-called *extras* have been written for Director so that interactivity can be utilized through the serial port. Mostly, it is the capabilities of Director that will influence IACT, as the means to producing interactive video in Director is cumbersome. Director's high ceiling makes it an excellent multimedia tool in general, but the reliance on the *Lingo* scripting language generates a steeper learning curve for the user. The programming paradigm (to be discussed below) in IACT gives it a much simpler feel along with a more gradual learning curve.

A.2.2 • APPLE iMOVIE
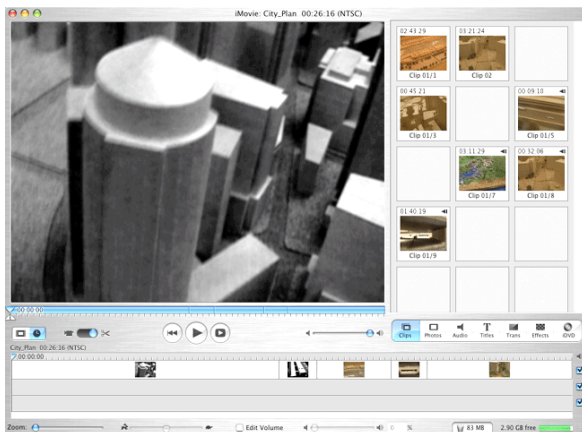
the iMovie interface

The paradigms for simple drag-and-drop digital video editing, iMovie and Movie Maker offer ease of use with high quality video production. While IACT is not a video editing tool, the lay-out and frame manipulation of these two popular pieces of software serve as a good basis for the overall "look" of IACT. Being able to readily import media and move it into a timeline serves as a good basis for importing media into IACT.

A.2.3 • LOGOBLOCKS

This experimental software, meant for the programming of experimental hardware, influences the IACT system through its use of an "iconic programming" paradigm. Blocks are snapped together to create the various control structures for a computer program. The ease with which these blocks can be manipulated, and the way in which the logic of the block is built into the block's shape, allows for a very low floor and a very fast learning curve. IACT will also use the block metaphor for the control structures needed for building up conditionals.
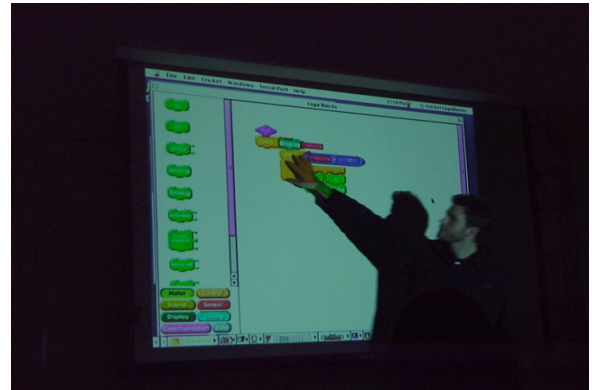
LogoBlock projected on a large screen for demonstration

A.2.4 • MAX MSP/JITTER

A tool first developed for music production, MAX is now part of the video world as well and is used widely in interactive video art circles. MAX as a programming environment has an incredibly steep learning curve with a very high ceiling. What most attracts me to MAX is the wiring metaphor it uses for developing programs. The wiring metaphor appeals to me because it is the simplest way to show relationships between objects. In the *Proposed Design* I will detail why the wiring metaphor might be beneficial to the IACT system.
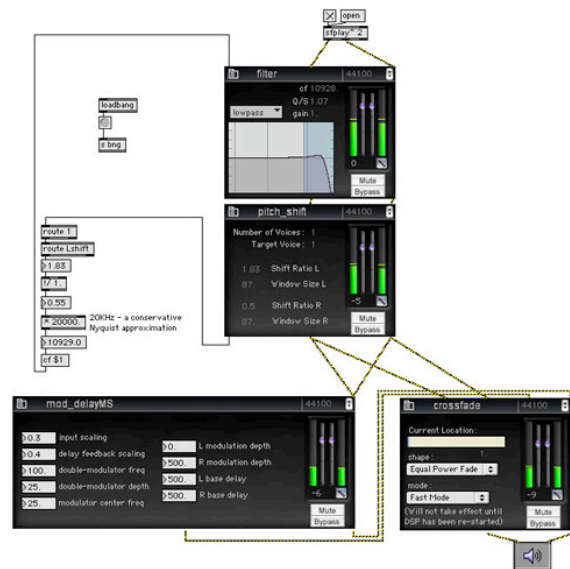
the MAX/MSP interface

Other lesser known software platforms for video and interactive art also played a role in the thinking behind IACT.
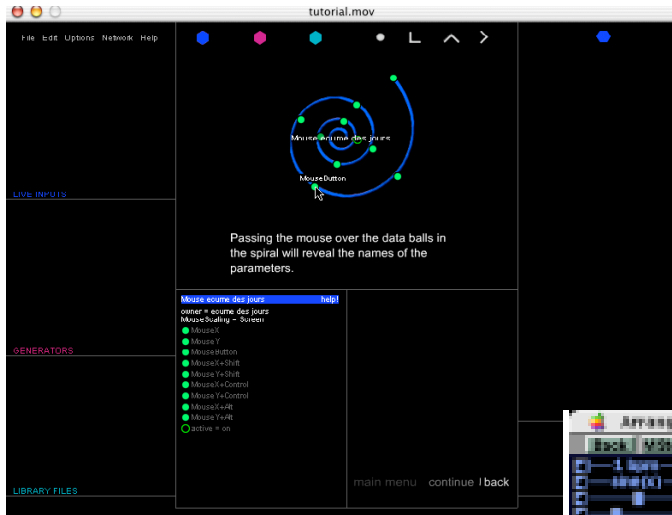
the Keyworx interface

the Onadime interface

the Videodelic interface

A.3 Proposed Design

SOME OF THE PROPOSED *DESIGN GUIDELINES* for the IACT
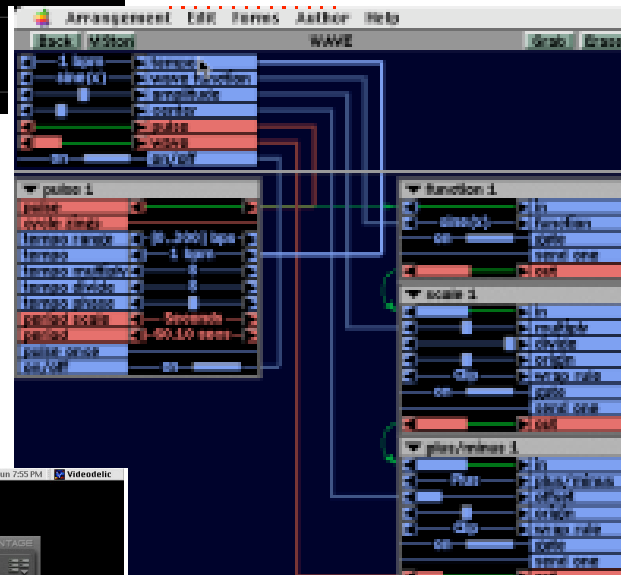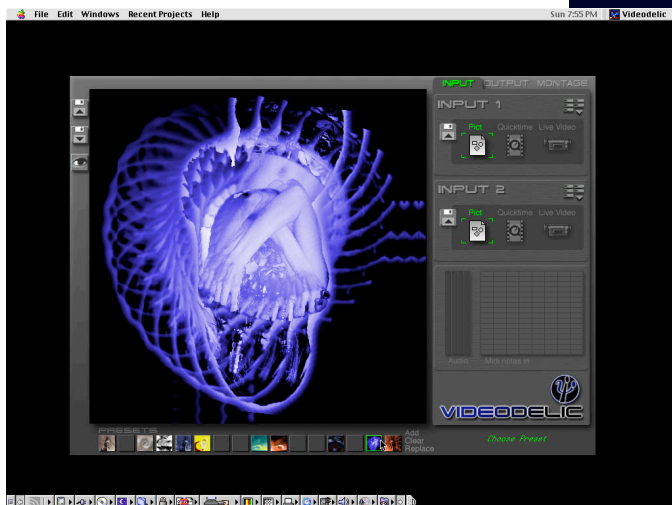system are as follows:

- simplicity of physical/digital connections-i.e. relating
physical to digital

- ease of use in programming mode
(drag-and-drop style)

- solid performance with standard system
requirements

In an effort to keep both the floor and the ceiling low within the IACT
system, there are only a few key sections of the software that
correspond to the user interface. These sections are for: programming,
controlling sensors, and viewing video.

A.3.1 • PROGRAMMING

building conditionals

The brunt of programming in the IACT system involves the
construction of conditionals in a block world (see comments on
LogoBlocks above). These conditionals will appear as *if* or *ifelse*
commands that can be "filled in" with the appropriate *triggesr* and
actions. The conditional is activated when it is either clicked or
when the system is placed into performance mode. The
conditionals structure will have a looping capability for controlling
frames of the video. These loops will have the ability to loop back
to the beginning of the video or to a specific frame in the video
sequence.

triggers

As it is meant to be an interactive art tool, the value of the sensors
as the primary controllers of the video output is paramount.
Within a conditional statement a block would correspond to a
particular sensor (both the real sensor attached to the Printed
Circuit Board and the simulated sensor built into the interface (see
"The Sensor" below)). Within this block a particular value can be
determined in order to establish a threshold for controlling the

video "Actions" (see below). This value can also be manipulated with a series of mathematical operations.

There are a few triggers built into the IACT system that allow video output to be controlled with additional types of conditionals. One additional trigger is the "end of movie" condition, where a particular action is triggered if the loaded video clip comes to its final frame. In addition, there could be a "time based" trigger that would generate a particular action when a certain amount of time has elapsed in the video playback.

actions

There are numerous actions that can be realized in the IACT system. These actions are the result of the triggers built into the "block conditions". An obvious action would be to start the video clip altogether. Another is to stop or "freeze" the video clip. Some of the more interesting actions could include jumping to a certain frame in a video clip, or to a new video clip altogether. There is always the possibility of developing a suite of simple effects for the IACT system; this includes filters that could alter the video in a variety of ways.

A.3.2 • Sensor Control

the sensor

The "sensor", as it is depicted in the user interface, is a stationary object that has a small numeric display attached to it. This device can be "attached" to an "image box" that contains the relevant set of video frames. This attachment occurs through a "wiring" process (see below) that visually represents the connection between one sensor and one collection of video frames.

wiring

Basic electronics are a key part of IACT and keeping the metaphor of wiring intact would ultimately help the user of the IACT system. In IACT, one might simply "wire" a sensor (in the form of an icon on the screen) to a particular video clip (located in an "image box" (see below).) Wiring often gives the impression of a flow of information from one point to another. In the IACT system, the information flowing through the actual physical sensor is what controls the digital video. Getting that notion across in the user interface would be beneficial to learning the system.

Lodged between the sensor and the collection of video frames – that is, attached to the wire itself – will be an individualized shape with a distinct color. This shape will correspond to a particular conditional that is spelled out in the programming area of the interface.

the image box

The "image box" contains the video frames that are going to be worked with. To navigate through the relevant frames a slider located below the box can be manipulated. Forward and back arrow buttons will be located on either side of the slider so that the user can step through individual frames. There will be three image boxes on the screen at any one time. This will allow the user to upload three distinct collections of video frames, allowing for the interactive programming of three distinct video clips.

A.4 Design Images
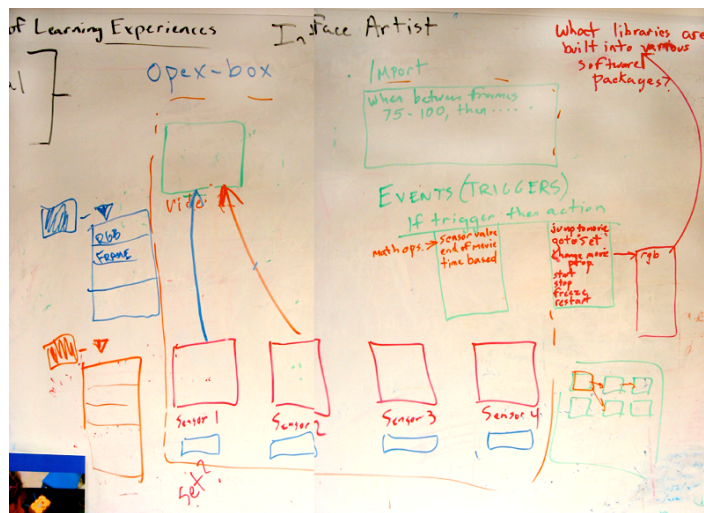
an initial white board sketch of the IACt system
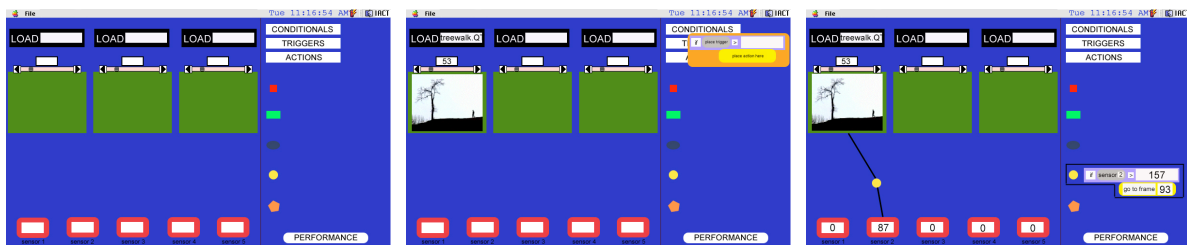
initial designs of the IACT interface – in thesecond image video has been loaded into one of the image boxes, in the third image the user begins to wire together programs

A.5 An Initial Scenario – The User Flow

THE IACT SYSTEM IS MEANT TO BE used within a workshop format. A student would begin the process of developing a project not with the software or accompanied hardware, but with paper and pencil. The first stage of this process would involve story boarding as the young artist gives over serious thought to the subject matter he and she has started to work with.

Julia has a fascination with basketball and has decided that she wants to express this fascination through an interactive installation. After considering what she wants to convey she begins to storyboard her ideas. Julia wants to convey something about the speed of the game and wants to use a "Sharp"distance sensor in conjunction with IACT's ability to speed up frames of video.

After storyboarding the relevant material – and here one must really consider how the sensor technology will be merged with the digital video – the young artist is now in position to carry out video capture. Here, *interactive cinematic literacy* is "put to the test" so to speak, as the creator of the interactive piece considers what kinds of imagery will work best with his/her idea.

Julia coordinates with her older brother Tommy and they agree to meet on the school playground on a day that Julia is participating in the workshop. She brings the digital video camera and explains to her brother what she wants to film. Using a tripod so that the image is as steady as possible, Julia films her brother as he dribbles the ball in place. The image only shows him from the waste down as he dribbles at a steady rhythm.

After capturing enough footage (about a minute and a half worth) the young artist is ready to upload their footage into a "third party" editing system. The IACT software does not offer editing capability nor can one apply substantial effects. By using a "third party" editing system, the user can edit and add effects to the footage ahead of time. These choices are just as important as the footage that has been captured.

Julia uses iMovie to completely edit the video she has captured of her brother. She ultimately decides not to add any special effects but she does pair down the footage from about a minute and a half to twenty-

seven seconds. She has gathered a solid piece of footage showing the basketball moving up and down at a steady beat.

Once the video footage is in the computer it must be broken up into frames, as this is the only way that the IACT software can display the footage. Most off-the-shelf video editing systems have the ability to export video footage into frames, placed in a special folder on the desktop. Once this has been completed the user can upload the relevant frames into IACT.

After transferring her frames of video to the desktop, Julia opens the IACT interface that she was introduced to at the beginning of the workshop. In order to upload the material she wants to work with she merely finds the image box she wants to work with (she picks the middle one) and she types the name of the file that contains her frames. After clicking on the "load" button, the very first frame shows up in the middle image box – an image of her brother's legs with the bottom portion of a basketball in view at the top of the frame. Above the slider that is attached to the top of the image box is a small box containing the number 1. This indicates that this is the first frame in the entire sequence. Using the slider, Julia can move back and forth between the first frame and the last – in this case there are 97 frames total. As she toggles between one end and another she sees all of the frames of her movie. The two arrows on either side of the slider allow her to step through the frames.

Once the frames have been accessed in IACT, they can now be manipulated using the sensor technology provided. The printed circuit board (programmed ahead of time) is sending the relevant data to the IACT system. The user of the system is now ready to enter the programming mode.

Julia has to consider carefully how she wants to program her sequence of frames. The data from the sensor – in this case sensor 1 – appears on the desktop in the sensor icon labeled "sensor 1". It moves through different values as Julia moves her hand closer and further away from the sensor. After seeing the progression of numbers Julia begins to get a sense of the pattern. She is ready to open up the "conditional" box in the programming section of the software. Here she snaps out some conditional blocks and drags them by the colored circle shape. Next, she fills in the spaces in the conditional blocks with the appropriate triggers – in this case referring to sensor 1 – and

the appropriate actions – in this case referring to the frame speed. By dragging the shape over to the sensor icon and clicking on the icon itself, Julia can begin to draw a "wire" to the middle image box where her imagery resides. After double-clicking again on that image box the wiring is completed. The yellow shape that was connected to her program shows up in the middle of the drawn wire. This then corresponds to the program that Julia had written.

Once the program is constructed in IACT it can easily be tested in performance mode.

Julia clicks on the "performance" button that launches a large-screen view of her video sequence. The basketball begins to move up and down at a certain frame rate. As Julia moves her hand closer to the sensor the frame rate picks up, but not at a fast enough rate. Julia then double-clicks on the screen that returns her to the programming mode. She then makes an adjustment to the parameter established in the actions section of her block code. Clicking on the performance button once again, Julia is able to get immediate feedback from her programming changes.

A.6 Design

THE NARRATIVE I HAVE DETAILED THUS far describes the rationale for developing a tool such as IACT, the influences on the IACT interface, the design criteria and components, and an initial scenario that describes the user flow. In the summer of 2003 work commenced on designing the interface.

The primary means to making the *interactive art construction tool* a reality was a project already underway in the Media Lab's Lifelong Kindergarten group. This project, called *Scratch*, is, "A networked, media-rich programming environment to enhance technological fluency at after-school centers in economically-disadvantaged communities" (Resnick, et. al. 2003). Essentially a tool for members of the Computer Clubhouse Network to build animations, games, and interactive art, many of the goals for IACT are resonant with the objectives of *Scratch*. As a means towards expediting the construction of IACT, it was folded into the process of the implementation of *Scratch.* Working with the chief researcher for *Scratch,* John

Maloney, a UROP (part of MIT's Undergraduate Research Opportunity Program) was chosen for the development of IACT. Darris Hupp, a junior computer science major at MIT began to implement IACT in unison with the design of *Scratch*.

Scratch itself is being implemented on top of *Squeak* – a programming environment designed by Alan Kay and others. *Squeak* itself is designed on top of Smalltalk, a relatively older programming environment. In large part the design criteria for *Scratch* was influenced by *LogoBlocks*, described earlier. To this end, *Scratch* uses an iconic form of building-block programming – users simply drag-and-drop relevant commands to construct procedures. IACT deliberately uses the blocks that have been established for *Scratch* if only because these blocks are being implemented by a team of designers – this decreased the workload for Darris Hupp as he designed the interface.

What is unique to the IACT design are the wires that are used to connect sensor data (input) with digital video (output). In addition, the three "image boxes" are also unique. The inclusion of these two elements are as follows: 1.) The wires are meant as metaphors for connecting sensor data to the video. Just as wires connect the sensor to the sensor board that is being used – be they photocell sensors or thermistors for measuring light or temperature, respectively – the wires in the interface continue the connection, from the literal to the figurative. 2.) The three "image boxes" that contain the uploaded video files – while being an arbitrary number – are meant to help the user keep the various video files they are using visually separate. While it is entirely possible to have multiple video files stacked on top of one another the idea of visually limiting the number of fields came from the view that a visually simple field would help teenage users keep track of the imagery they were using.

By the end of the summer of 2003 Darris Hupp, John Maloney, and myself had produced a working interface for IACT:
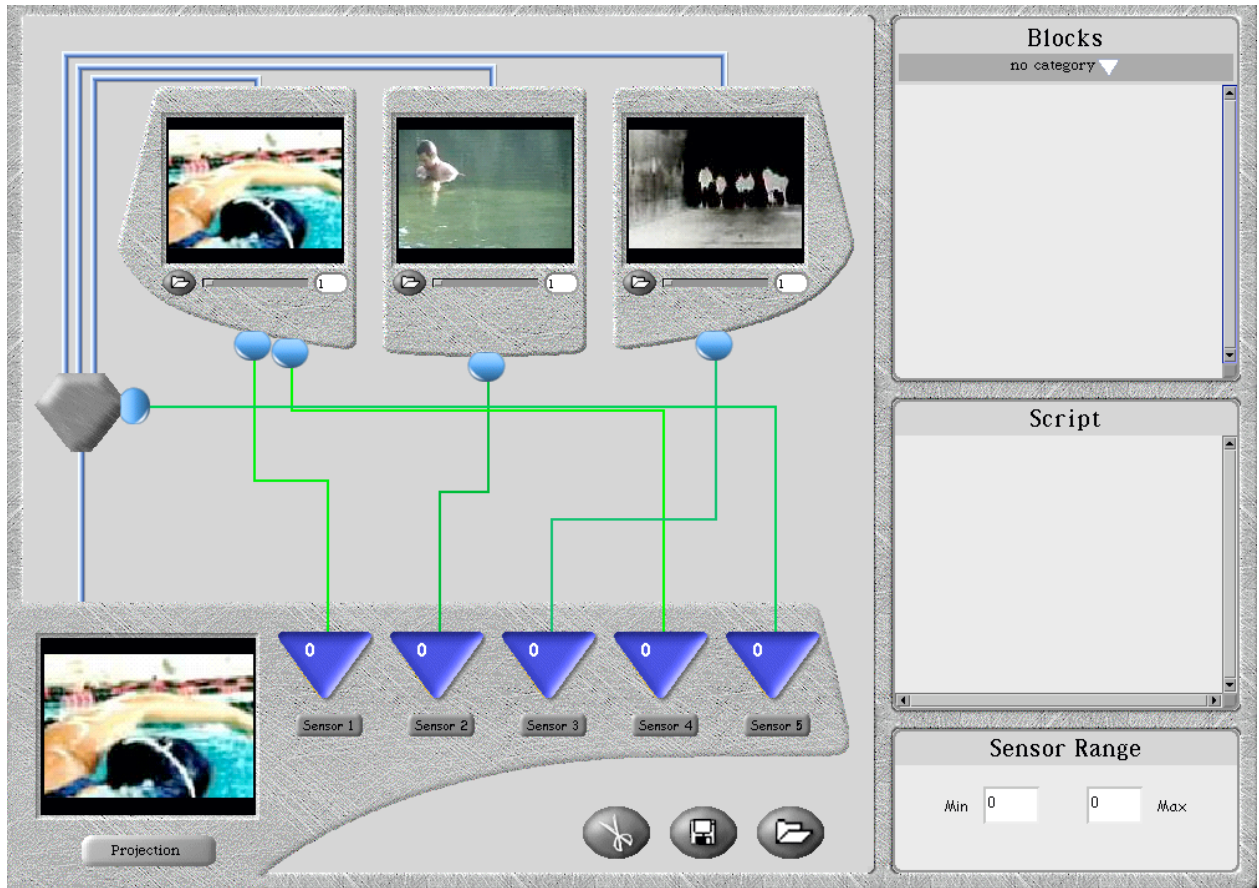
an image of the IACT interface, with wiring connected from the sensor readings (blue inverted triangles) and connected to the relevant videos in the three "image boxes"

A.7 *Aboutness* in Electronic and Interactive Art

WITH THE IACT PLATFORM IN PLACE AND TESTING ready to begin I went to Europe to spend time observing the *Ars Electronica Festival* in Linz, Austria, participate in design discussions at the *LEGO Corporation*, and have my work critiqued at *Media Lab Europe* in Dublin, Ireland. All three of these brief visits contributed to this thesis and in large part made it what it is. This eventually determined the degree to which I would rely on the IACT tool for my own research.

A.7.1 • ARS Electronica

Annually Linz, Austria and the Ars Electronica – "The Museum of the Future" host a festival/conference on electronic and interactive art. In September of 2003 the theme for Ars Electronica was "Code": Panels, exhibits, and performances were geared around the growing role that code – digital or otherwise – plays in both art and culture.

Ars Electronica "Code" Festival

During this festival numerous designers were present, exhibiting their contributions to the field. Many of these contributions included the design of tools for developing interactive art. While not geared towards teenagers, these tools were impressive in their capabilities. The most impressive tool was a MAX-like program that connected video streams and commands through a process of wiring. Called, *VVVV* this tool is being implemented by a group of artists from Germany.

Upon leaving Linz for Denmark I was developing some thoughts about IACT : First and foremost it was clear that it could never exist on the same level as many of the designs exhibited at Ars Electronica. Second, the formal aspects of code – making the art and the event itself highly formalistic – made me yearn for electronic art that was *about* something. My impression of most works here was that they employed a significant amount of "eye-candy" tropes.

VVVV being demonstraded at *Ars Electronica* 2003
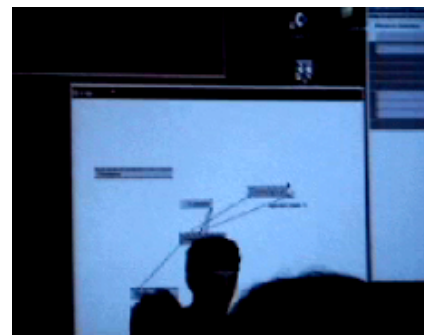
A.7.2 • LEGO Corporation

In Billund, Denmark – headquarters of the *LEGO Corporation* – the idea that designed things have to have aboutness was shaped in numerous ways. The experience at LEGO reaffirmed my interest in the idea of designing things so that others can themselves design. This was a critical aspect of my involvement with IACT. Yet, in design meetings with various project designers at LEGO we kept coming back to the notion of the scenario. Considering how people will use the things you design is critical to designing something properly. This is obvious but not trivial. In my own initial scenario involving Julia and her brother playing basketball I considered – to some degree – how Julia might put something like IACT to use. But the richness of the concept – the very fabric of the scenario – does not to my way of thinking have a deep quality.

A.7.3 • Media Lab Europe

Carol Strohecker of Media Lab Europe's *Everyday Learning* group invited me to a weekly critique to give an informal talk and share my work. Here, I described research I was carrying out for the Playful Invention and Exploration Network, my interest in video art, and my attempts to bring both worlds together with IACT. The critique of my work was based on one simple premise: Generally when artists design a tool they are already thinking about how it will support the

conceptual material that is being developed. Of course, this is the primary dilemma for the designer of educational technology that is meant to support the design of original constructions. How does a tool remain open-ended in an effort to support exploration yet provide the necessary components for the development of specific creative works?

To this end, those who attended the critique were inspired by the three image boxes; they wondered how those three boxes could refer to different perspectives.

A.7.3 • Amsterdam, The Netherlands

A brief layover in Amsterdam helped solidify some of the discussions that occurred in Dublin. With experiences as LEGO and Ars Electronica at the front of my mind as well, I began to think about different perspectives and how they could be captured in an interactive work. Of course, IACT was the tool I wanted to use so this greatly altered how I would approach the problem of developing a work about different perspectives.

A three-hour conversation with the proprietor of the Princess Café in the Jordaan, a working class section of Amsterdam became one perspective for my ideas. Another perspective was provided by the taxi cab driver that drove me from Centraal Station to the Museumplein in Amsterdam. The café owner had lived in Amsterdam his entire life and owned the café since right after World War II. Much of our conversation included his descriptions of Amsterdam, how it had changed over the years, etc. On the other hand, the taxi cab driver was born in North Africa but moved to France and then Holland as a young child. Most of the conversation as we sped through Amsterdam streets centered on my inability to speak any language other than English, while the driver spoke eight, perhaps nine languages. If the café owner could be said to represent stasis, the taxi cab driver embodied the dynamic nature of a global society.

To capture this in an interactive work would require using a kind of sensing capability that could detect if people are moving through a space or not. A projection – one of the café owner talking about his life while staring out the window of his café, and one of the taxi driver talking about his life as he speeds around corners – would appear on a wall. Simply put, if the viewer is walking in the space the taxi driver's vignette would appear. If the viewer stood still, the café owner would be seen.

A.8 Interactive Documentary – A New Scenario

IN THINKING ABOUT THE INTERACTIVE DOCUMENTARY I began to consider new scenarios that a teenager might get involved with when using IACT.

Again, consider Julia, a hypothetical 17-year-old high school student, creates an interactive video art work based on personal interest in a very specific location and very specific events that happen at that location. Through the process of developing an interactive video art work about this personal interest, Julia comes in direct contact with her theory of mind as she interacts with her own perspective and the perspectives of others through video documentation. She enters into a very dynamic learning experience through her social interactions during video capture and the subsequent construction of an interactive video and physical interface. Through this entire process she leverages new media and the arts for developing a better understanding of perspective-taking.

Julia has developed an interest in the street corner outside her grandmother's apartment. For as long as Julia can remember, her grandmother has complained about the high school kids that hang out on the street corner. Now that Julia is in high school, she wants to compare her grandmother's perspective with the perspectives of the kids who her grandmother complains about. In her project Julia includes images and sounds of her grandmother complaining about the other teenagers who hang out on the street corner. Her grandmother is also seen talking about the store on the street corner, how it makes things so convenient for her. There are also images of kids playing on the street corner, and interviews with kids talking about how there is nothing to do after school. The images of the store owner talking about how the street corner is a good place to have a business are also included. He alludes to the fact that he doesn't mind having the kids hang out in front of the store after school, but he laments that he wishes they had somewhere to go and do something productive.

Julia edits this video and audio in a standard editing system and then uploads it into the "Perspectives" system. In addition to the documentation of her grandmother, the kids on the corner, and the storeowner, she includes some images of the crosswalk sign flashing "Walk" or "Don't Walk". Julia constructs a tangible interface that will allow a viewer to navigate through various video clips. Using a small plastic figurine and a map of the street corner she has made out of traditional construction materials, Julia designs a way for a viewer to move the figurine around the map and control which video clips play when. Julia uses the "Perspectives" system to program how the images and sounds are experienced through interaction. Using an iconic building-block programming environment Julia dictates which sensor

values will control the video output. She drags conditional blocks from the block palette to the scripting area, inserting the proper threshold numbers in the sensor variable blocks.

After Julia finishes designing her interactive documentary, it is projected onto a wall and is ready for her friends to try. When Julia's friend Ricardo first encounters her project he sees the large word "Walk" flashing on a wall. Picking up the figurine, Ricardo's actions change the projection to a flashing "Don't Walk": Only when Ricardo places the figurine back down on another spot on the map (the corner, the store, grandmother's home, for instance) does the projected image change. Depending on where the figurine is place, Ricardo sees the appropriate footage and hears the appropriate commentary. The perspectives are revealed. Julia programmed her system so that when a particular perspective is finished playing, the projection begins to flash "Walk" again.

A.9 Making a Long Story Short

WHAT HAPPENED WITH IACT? FROM A DESIGN point of view the major decisions (i.e. "image boxes" and the wiring metaphor) were made two quickly before any significant testing was really made. It never became clear why those choices helped make it the intuitive tool I hoped to design. Another dilemma involved the relationship the IACT had with *Scratch*. For the most part, this relationship was very fruitful; without the resources and support that loaned from the Scratch project to IACT, IACT would never have become a reality. The downside of this relationship was that much of the design criteria for *Scratch* were also used for IACT. The "image boxes" and wiring metaphor were emphasized to distinguish IACT from just being an alternative *Scratch* interface. Again, this then put emphasis on design choices that were not just arbitrarily decided upon, but necessary for intuitive video design.

IACT was never formally used for the "Perspectives" project.   In studying different perspectives – and starting to consider the role of perspective-taking – it became clear that an examination of the *idea* of perspective-taking would be an interesting place to start. *Ambiguous imagery* is only interesting if they become unambiguous at some point.

When they do, we can reflect on the changes in our mental models and begin to understand the role that the special relationship between perception and conception play. Placing a video like *Zea* (see chapter 3) in the IACT system is interesting for a moment, but it does not leverage the ambiguity of that imagery for any real conceptual learning. In my experience, a traditional narrative, following a linear story, supports the 'dawning of an aspect' that – if my hypothesis is correct – helps reveal a tremendous amount about what people are conceptualizing and when. This becomes a window on people perspective and allows *mindreading* – a.k.a. *perspective-taking* – to happen more naturally.

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