

Networked Artworks: Complex Connections in New Media Art Education

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ABSTRACT

This paper draws upon the notion of the networked artwork in order to suggest possibilities for new media art education, informed by research in complexity and systems theory, participatory media, and critical pedagogy.

Categories and Subject Descriptors

General Terms

Measurement, Documentation, Experimentation, Theory.

Keywords

Complexity Theory, Art Education, Visual Culture, Networks, Progressive Education

1. INTRODUCTION

You find yourself in a space that is overwhelmingly complex. Too complex for words, though the experience requires some form of verbal interpretation. Your head twists to take in the spectacle of image, pattern, and text, destabilizing your body and your ability to 'take it all in.' As you wander, you are increasingly intertwined with the space around you, extended through the gift of a playing card handed to you upon entry.

The complexity of this experience blurs boundaries. The walls become the floor, becomes a transparent screen through which you view more images and symbols. The visual and the verbal intermingle: fractal patterns of turquoise, blood-red and canary yellow blend with outlines of almost-human forms, overlaid with mathematical symbols and religious iconography. The complexity spills off of the canvas, dribbling on the floor, down the hall, onto the ceiling and into your computer monitor.

The opening line of this paper could relate to many contemporary experiences. In this case, it refers to a contemporary *art* experience. Contemporary strategies of making, viewing, and critiquing art reflect this complexity, and contribute to its perpetuation. The artwork of Matthew Ritchie, such as *Proposition Player* (2003), defies clear categorization. It encompasses a variety of techniques, materials, and themes that leave the viewer transfixed. His work is elusive, challenging a variety of traditional art historical boundaries: formal boundaries between painting and sculpture, conceptual boundaries between hard science and fine arts, spatial boundaries between physical

and virtual experiences. His work deals with complex issues through equally complex methods of presentation.

Ritchie draws inspiration from various sources: world mythology, quantum physics, and comic books, to name a few. His work takes these sources and amplifies them to a fever pitch, at once overwhelming the viewer and providing clues as to the possible meanings that underlie the images and forms. Working with charts, diagrams, and graphs, Ritchie makes reference to the potential for works of art to convey meaning, to illuminate complex concepts, to educate.

This paper deals with the educational possibilities for works of art that entail contemporary networks, whether social, economic, or technological. These 'networked artworks' should be understood as works of art that are created, distributed, viewed, reproduced, and reimagined in and through contemporary networks of exchange, which share similarities with complex systems [1]. The characteristics of networked artworks can inform and influence the teaching of art in various spaces, as networked artworks incorporate modes of interaction that are flexible, scaleable, and open-ended.

Educational spaces have always been composed of complex interrelationships between students, educators, families, administrators, belief systems, ideologies, and cultural practices. However, art educators, along with educators in general, have generally chosen to simplify these connections, to create hierarchies from decentered patterns. The recent interest in visual culture art education represents an acknowledgement of the complexity of contemporary life – and contemporary vision – without the impulse to simplify. As Freedman [2] states:

Visual culture is inherently interdisciplinary and increasingly multimodal. All of the arts, not just the arts traditionally considered visual arts, have visual culture characteristics. However, just as the definition of the term art has been debated for centuries, the term visual culture does not necessarily require a precisely agreed upon definition to discuss it in terms of education. Quite the contrary, it is likely that the multiple definitions of art that have been encouraged through formal and informal education have helped to keep art fresh and in the process of change (p. 2).

Similar approaches to new media art education may allow for responses to complex times through equally complex forms of

thought. A networked new media art education, as I will argue, may illuminate the differences between teaching art in higher education and K-12 settings. New Media is typically viewed as a separate artistic discipline in the former, and a tool for teaching in the latter. However, the unique characteristics of new media art -- images reproduced through simulation as opposed to reproduction, actions that intertwine user and machine, processes of interpretation based in transcoding -- require pedagogical approaches that are equally responsive to developing technologies and modes of interaction that blur distinctions between student and teacher, artist and educator [2].

2. ART AND COMPLEXITY

Works of art have always been created, displayed, and understood within complicated social networks. Whether created for the purpose of reverence, made as a product to be bought and sold, or manifested as a personal expression that is seen by few, visual art is by its very nature contingent upon a variety of interpretations. Visual art relies upon this multiplicity, the power that comes from visceral response and logical analysis, personal bias and institutional influence, and the contradictions that arise as these interpretations develop.

Art is what Efland [3] calls an 'ill-structured category,' as opposed to the ordered nature of other disciplines such as the hard sciences. This does not mean that art cannot be interpreted, or that artworks always fall prey to radical subjectivity; it suggests that, due to the open-ended nature of artistic production and reception, no single metaphor can adequately be used to describe the experience.

For instance, if we take the initial example of the work of Matthew Ritchie we can see that there are many connections that can be made between the fields referenced and how visuality is framed in each field. In world mythological traditions, images are often produced in conjunction with text or narrative, which creates a binary relationship between the two. In quantum physics, data is represented in quantitative and qualitative form, charts, graphs, and tables are accompanied by visual representations of interactions unavailable to the naked eye. In comic books, the visual and the verbal combine to form narratives of heroism, melodrama, and violence.

Each of these forms of visuality requires unique metaphors; some align while others contradict. This process of comparison is undertaken by the viewer/participant/player, and by Ritchie himself. The viewer sees his continual urge to diagram his own work, to overload the images with references, making visible the process of interpretation that is usually reserved for the viewer, the art historian, or the vandal. In this manner, he challenges yet another boundary: the boundary between artist and viewer, becoming both through his diagrammatic practices.

His work continually resists simplification, announcing its ill-structured-ness, its complexity. It is through complexity theory that we may better understand the processes by which works such as Ritchie's challenge traditions of materiality, interaction, authorship, and institutional control. The qualities of complexity theory are *differentiation*, *interaction*, *self-organization*, and *emergence*.

The first quality of complex networks to be discussed is *differentiation*. Complex networks involve numerous material forms, which typically are transformed as the network adapts and

changes. *Proposition Player* (2003) is made of a combination of traditional art materials -- oil paints, canvas -- as well as those considered non-traditional -- latex, video animation, computer code. These materials are extended into the virtual realm, opening them up to further modification and manipulation. The materiality of the work allows for adaptation by the viewer, incorporating the 'chance' engagement with the piece through the playing cards handed out to each viewer. Works such as *Proposition Player* (2003) defy the Modernist urge to simplify, to reduce form to the bare minimum.

The second aspect of networked artworks is related to the options for *interaction* that are presented. Complex networks are organized in structures that are decidedly decentralized. The ability for components of a complex network to interact in numerous ways is critical for the ability for networks to evolve and transform. Ritchie's work is presented on stretched canvas on neutral walls. It then flies through the gallery space in the Gallery of Contemporary Arts in Houston, down hallways, across floors, working against the geometry of the Modernist museum space. His work is also presented on-line, allowing for additional options for interaction. Although Ritchie is an accomplished gallery artist, his work makes collection somewhat complicated, as much of the impact of his sprawling installations are ephemeral, based in an experience that is rarely recreated.

This leads to the third attribute of complex networks: self-organization. The combination of differentiated material forms with decentralized forms of interaction leads to organizational forms that may not be predetermined in the initial structure. Ritchie's work incorporates chance operations and ludic forms of engagement, both of which allow the viewer to modify the material arrangement as well as the interactions that the work engenders. Although his work represents a power shift, allowing the viewer to contribute to the form and the meaning of the work, it also retains much of the authority of gallery-oriented art. Nonetheless, it acts as an important example of the types of complexity that artists are dealing with in a network society.

The last quality of complex networks related to networked artworks is emergence. This quality is the hardest to pinpoint, as it relates to the moment when the network becomes something new. The work may become myth, science, or comic, depending on the ways in which they restructure the information presented. As an ill-structured category, this process is potentially endless. And, although Efland [3] presents all art as ill-structured, we can see that works of art that utilize differentiated material forms, adaptable interaction, self-organization, and emergent opportunities may be more ill-structured than others.

My goal is not to offer a comprehensive formula for the networked artwork; it is instead, to point out the usefulness of complexity theory as it relates to artistic production and reception, and how these networked attributes might be useful in new media art education.

3. EDUCATION AND COMPLEXITY

Education takes place in many venues, through various languages and complex social forms of interaction. Formal public schooling began in the United States as a way to unify disparate groups and promote social values, emphasizing dominant cultural values over disparate beliefs and cultures [4]. Although there have been examples of movements that have been built from alternate

pedagogical models, such as the Reggio Emilia movement in Italy, education in the United States has primarily been based on hierarchical structures: on the model of the centralized network.

Philosopher and progressive educator John Dewey did much to expand rigid educational models in the early part of the 20th century. Influenced by his background in pragmatic philosophy, his approach to education emphasized social responsibility and democratic ideals. His writings have influenced educators throughout the past century. They also provide a model for adaptations that might reflect the social changes of life in the complex times.

In *Democracy and Education*, Dewey [5] suggested that schooling played three fundamental social functions. First, educational systems are to break down and simplify the complexities of social life:

The first office of the social organ we call the school is to provide a simplified environment. It selects the features that are fairly fundamental and capable of being responded to by the young. Then it establishes a progressive order, using the factors first acquired as means of gaining insight into what is more complicated (p. 20).

The second responsibility of the school was to clarify this process of simplification, deeming that which is unworthy of transmission, “weeding out what is undesirable” (p. 20). This directly addresses the ethical and moral responsibilities of the educational process. The third responsibility of schooling is to create an environment that allows individuals to come into contact with new ideas, meeting new people and allowing for the formation of new social configurations. It is this last feature that relates most to the complexities of contemporary life in the network society.

Dewey recognized the complexity of social life, and the challenges that educators faced as a component within society:

. . . a modern society is many societies more or less loosely connected. Each household with its immediate extension of friends makes a society; the village or street group of playmates is a community; each business group, each club is another. Passing beyond these more intimate groups, there is in a country like our own a variety of races, religious affiliations, and economic divisions. Inside the modern city, in spite of its nominal political unity, there are probably more communities, more differing customs, traditions, aspirations, and forms of government or control, than existed in an entire continent at an earlier epoch (p. 21).

This description of social life is very close to the description of the 'Network Society' offered by Castells [6], although he emphasizes the global awareness of being interconnected that was, at best, geographically localized in Dewey's time. While Dewey acknowledges the value of these diverse 'societies,' his suggestions for educational approaches that segment and simplify might not be relevant within the increased complexities of 21st century life.

It is the responsibility of educators to carefully choose the values and ideals that are reinforced through pedagogical approaches, in response to community values and social ethics, with the understanding that much of public school curriculum is 'hidden' [7]. However, in increasingly complex times, educators might find

relevant connections in approaches that open up the possibilities for engagement, uncovering the problematic aspects of the educational process and distributing the responsibilities of the educator across the educational terrain. Art educators have at their disposal many models for complexity, and therefore might be in a position to construct these networked models.

4. NEW MEDIA ART EDUCATION

The phrase 'new media art education' can mean many things. For Scholz [8], it refers to the teaching of new media in the academy, which he describes as being in 'crisis'. I will expand this notion slightly, proposing an approach to teaching art that takes into consideration the complex attributes of much new media work. This is an art education that responds to new media theory and practice; both the teaching of new media, as well as teaching *as* new media.

If one was to combine the networked qualities of contemporary works of art with the social responsibilities of public education, the ill-defined nature of art with the contested hierarchies of higher education, might the result be a form of new media art education that is adaptive to new technologies and theories? In order to explore this question, I will return to the previous discussion of the four aspects of complexity theory, and the work of Matthew Ritchie, used to propose the notion of the networked artwork.

First, the *differentiation* that is represented by the variety of materials, methods, and metaphors in Ritchie's work can surely be seen in many forms of education. Interdisciplinary educational models represent a form of this diversity. Though the educational value of multiple, overlapping disciplines has recently been championed by researchers such as Gardner, they were first espoused by Dewey as a progressive form of expanding educational opportunities [9].

Interdisciplinarity in art education has also been consistently debated as paradigms shift and new pedagogical approaches come into vogue [10]. The introduction of Discipline-based Art Education in the 1980's brought these discussions to the fore, as art educators sought to incorporate practices drawn from Art History, Art Criticism and Philosophy. Developing technologies have also challenged disciplinary boundaries, as art educators at all levels attempt to comprehend the unique requirements for new media as reflected in practice and theory.

Though most would not consider Ritchie a new media artist, he has consistently utilized networked digital technologies in his work. The fields that Ritchie draws upon – World Mythology, Quantum Physics, Comics – allow for numerous interpretations to be made. Art educators at all levels should be open to the possibilities for artistic production made available in a wide variety of disciplines. Students should become familiar with the visualities that are associated with disparate ways of seeing; at the same time, they should resist the cultural colonialism that is associated with Modernist forms of appropriation. Art students should become familiar with the images and actions that they reference, and, more importantly, should seek out relationships with professionals in these fields, so that these connections are not superficial, or worse, offensive.

This leads to the second aspect of complex systems that can inform relevant forms of new media art education: *interaction*. As previously discussed, educational systems have historically been

organized in a centralized fashion, seen in both physical arrangement of space [4] and hierarchical organizations that mirror corporations prisons and hospitals [11]. By mirroring decentralized organizational structures such as the internet, art educators may find possibilities for participation that expand educational opportunities.

The open classroom movement is one historical precursor in K-12 education that art educators may wish to study, as both the physical and philosophical models encouraged peer-to-peer interaction, dialogue, and feedback of the type found in complex systems [1]. These forms of interaction may be more prevalent in higher education, a point that K-12 educators should take into consideration when considering socially relevant pedagogical forms.

Such interactions lead to the possibility for *self-organization*, the third aspect of complex systems that new media art educators may wish to consider. As suggested in the discussion of differentiation, dialogue with professionals in a wide variety of disciplines can expand the possibilities for artistic production. Ritchie's use of elements from card games and games of chance point to the possibilities that the viewer can respond in ways that fall outside of those commonly associated with artistic engagement. Viewers may choose to trade cards, develop unique games not anticipated by the artist, or take home the elements to be used in any number of ways.

Students often self-organize in ways that are productive, critical, and perhaps destructive. The challenge for the new media art educator is to find ways for these responses to become part of the fabric of the course, the project, or the discussion. One way to allow for this might be to encourage the use of social media such as blogs that can catalogue and distribute student work in a manner that is not fully under the control of the educator.

Last, the new media art educator should be aware that often the outcome of all of these processes is the *emergence* of a system that was not predetermined. An art project may turn into a community based mural project. A discussion might evolve into a political rally. This lack of control might be seen as undesirable; however, the possibilities for engagement offered by an emergent system may truly access the democratic potential for education that Dewey [5] theorized.

As Ellsworth writes, the potential for works of art to act as fulcrum situate the visual arts as central to democratic processes, political engagement, and pedagogical transformation. The networked artwork presents models of differentiation, interaction, self-organization, and emergent behavior, allowing new media art educators at all levels to teach in and through complex times.

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