Racing Thoughts: Altering Our Ways of Knowing and Being in Art Through Computer Hypertext

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In this autobiographical anti-base research study the authors use data from personal experiences and education theory to critically evaluate the use of interactive computer hypertext with an expansive and meaningful way of knowing in art education. The authors share the construction of a computer hypertext of painting texts, images, and video in response to Jasper Johns's 1983 painting Racing Thoughts. Because the linking possibilities available with hypertext, the authors make trade connections in art and between both real and imagined world experiences. From Goodelman's database Adeptive to the British Information Corporation's retrieval system Changing Rooms, the constructive possibilities available in hypertext seemed to alter the authors' thinking. The common dull and ill-educated immiscible in computer hypertext appears to authentically represent the "reality" that may be the characteristics of a work of art" (Eidell, 2002, p. 11) and may really facilitate a better understanding of Johns's 1959 Utopia for Futurity's art. Education the implications of this research extend the integration of computer technology in art education as a means of promoting relevant, meaningful, and constructive ways of knowing in and through the study of art.


In 1983, artist Jasper Johns created and re-created objects to capture his own Racing Thoughts with enigmatic paint on canvas. Illustrating his thoughts toward dichotomy, Johns purposely used objects that provoke multiple meanings, representations, and associations. As the title of the painting suggests, Johns (as well as the viewers of his painting) contemplatively search to make sense of their racing thoughts and the myriad of relationships around them. In the words of hypertext theory pioneer Thaddeus Nelson, all human beings have a need to understand "how the constant separation and reconnection and perpetual change into new arrangements is... in how all relationships are constantly changing—what you can hardly hold onto—is...you can, you can not, you can really, really visualize and express it." (Nelson in Wolf, 1995, p. 25).

This constant quest to visualize, express, and understand the myriad of relationships or racing thoughts that resulted from our study, teaching, and living led us to interactive computer hypertext. Writing collaboratively and sharing a computer hypertext file as we did while analyzing John's Racing Thoughts provides an opportunity for capturing and critically analyzing ideas and connections associated with cognitive flexibility theory (Spiro & Spiro, 1990). We believe that sharing our collaboration in this article as a form of autobiographical research will serve to illustrate the manner in which a hypertext-induced way of knowing permeates every aspect of our lives and in the process reveals a connective and expansive approach to art education. Such connective and expansive experiences promote complication and ambiguity that are likely to inspire more meaningful and relevant ways of knowing than the traditional linear or compartmentalized approaches do in art education.

The notion of hypertext began in 1965 with Vannevar Bush's As We May Think. Working with the scientific community to continue their great strides in research and discovery after World War II, Bush proposed a mechanically linked information-retrieval machine, called a "memex." Twenty years later, Thaddeus Nelson coined the term "hypertext" and explained it as text that branches and allows choices "connected by links which offer the reader (and creator) different pathways" using the computer (Latour, 1992, p. 4).

In the hypertextual computer program Storyspace desktop boxes, called writing spaces or lexias, may contain information as well as other boxes of data in the form of written text, images, sound, and video. Entire boxes and/or key words, phrases, images or parts of images may be linked to form associative and connective paths throughout the Storyspace web. Storyspace provides three possible overviews of a constructed web—the chart view, the outline view, and the Storyspace view. The Storyspace view is a graphic representation of the web depicted as writing spaces in the form of boxes and links represented by arrows. A reader or writer of a Storyspace web can see, access, and comment directly on any or all areas in each of these views. Storyspace writers create their own paths throughout the web by choosing the order in which they read and add content, notes, images, and videos. This adaptable Storyspace characteristic acts as a compelling device—challenging the reader to change the structure of the original web and thereby make it more than it was before they encountered it.

Like John's idea of taking an object, doing something to it, and doing something else to it, Interactive computer hypertext provides the reader and the writer the ability to create, organize, and rearrange spaces (or thoughts) on the computer. Each space may contain a variety of contents and be linked electronically to other spaces. Because of the changeable nature of these spaces, hypertext provides a site for continual redefinition in the cognitive processes of thinking, interpreting, and knowing by both the Writer and the reader. Such redefinition and reflection is made possible through computer hypertext because of the ease with which the computer allows readers and writers to maneuver through past, present, and future.
thinking. Unlike note cards, books or papers, with computer hypertext visible links between thoughts, ideas, images, and parts of images can be created. In a way, the thinking process of readers and writers can be speeded or slowed by following paths through the web. Challenges, questions, and comparisons can be added directly in a space and accessed by a mere click of the mouse, opening multiple spaces at a time rather than shuffling through pages of a book or script of paper.

Johnson's painting and its title, Racing Thoughts, epitomise the kind of thinking and associating we engage in as art educators, through our work with students and computer hypertext. Since 1995, we have used hypertext to develop the same units of instruction, write and explore criticism and aesthetics, create online course design and classroom presentations, track our research, write, and make art.1 With each experience, we find that the hypertextual process provokes our thinking to move backward and forward, linking information from past research, thoughts, and ideas to new readings and practice visible and accessible on our computer screens. Like Bath's imagined "memes," our Storyspace™ files afford us the luxury of hindsight, middle sight, and foresight in our thinking and thereby provide us in no more than the obvious and into realms of understanding and connecting we would not have considered through a traditional and linear approach to study.

Racing Thoughts: A Hypertextual Response

Our two-person collaborative hypertextual reading of Racing Thoughts began with the image of a work in a Storyspace™ web. We then tooled turning links to information and images that strengthened our own understanding of the painting. As if playing a game of catch, on a busy spring afternoon, one of us would make additions to the hypertext and return it the other by way of e-mail. We color-coded our additions so that we could track our contributions and the progress of the painting through its development. The key to this process was the quest for visual and contextual information we determined to be associated with the work that somehow demanded exploration. Similarly, hypertextualists Rachel and Marieen Michael Joyce (1991), in the directions for reading his hypertext Fiction, afterwards, a story, encourage readers to interact with the text through "pursuing a series of connections" in this way, we were following Johnson's advice each time we did something to his work, an image in the work, or a concept related to the work, and [when we] then did something else to it.

The very fact that we exchanged our own interpretations and investigations of the work with each other mirrors the visual dictionary of Johnson's Racing Thoughts. Indeed, our own thought began to race when one of us received a message from the other containing the latest additions to the hypertext. Because we were reading the hypertextual interpretation through the other person's latest response, we each viewed the work and the hypertext, if only briefly, from the other person's perspective. Through this
style and a more expressive rendition of Castelli's portrait. The photograph expresses something different.

We linked these questions to information about a 1995 series of portraits of men on Death Row created by contemporary artist Joseph Norman. We explained that John's copy of Castelli, Norman's copy (of Norman's painting), and Castelli's portrait were all copies of another work. Norman's portrait is a version of Castelli's portrait. Castelli's portrait is the original version. John's copy is a digital reproduction of Castelli's portrait. Norman's copy is a digital reproduction of John's copy.

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Racing Thoughts

Did Johns use the tape on Mona to reveal her translucent nature? Is she the same Mona? Does she still belong to da Vinci?

Figure 2. Links between Johns’s use of tape and tape images with artist John Baldessari’s Spectre (After Owen) and John Berger’s interpretations of personal bulletin boards encourage further hypernatural questions about the Mona Lisa and the object of art.

machine made life, and Carnegie funding was obtained on Royal Bailey Farmam’s recommendation (Freedman, 1989). Supposedly based on community interest, a new art curriculum was needed so that community taste could be changed to agree with expert opinion. In other words, the experts looked at art education as a way to socially adjust the people of Owtawam. Like the critics of “Changing Rooms” who often accuse the designers of a narcissistic approach to do-it-yourself home improvement, Kenny Freedman’s (1989) critical examination of the Owtawa project reveals an underlying attempt at social control. This link and thoughtful contemplation illustrates how an assumed neutral intention of enriching people’s lives through expert design can promote a social agenda.

Granted, linking Johnson’s Racing Thoughts to a critical commentary on historical and contemporary culture in this way may appear to be a rather expansive leap. But our work in computer hyperart encourages big leaps, small steps, and connections of various lengths in-between, which neither of us encountered in our prior learning and thinking experiences. We

B. Stephen Carpenter, II and Pamela G. Taylor

Getty Museum, 20000. Baldessari used the specian pin as a rose representing a lilio, a humong and a real deal of commentary regarding the sacredness of the art object. Was this also Johns’s intention? Was he questioning the value of Cautil, or was Johnson going further to question the object of art? Further linking explains that Johns used images of tape in the painting as a mounting device for the Mona Lisa, reminding the viewer that the Mona Lisa was and is everywhere; she is not just in the Louvre. As her representation increases, she takes on multiple meanings and is dependent upon the media with which she is represented. Johns ropes her to a wall, evoking her mysterious background, and hides people up under these texts. She is not da Vinci’s Mona Lisa anymore; rather she is simultaneously an object, a decoration, and a piece of paper covering a hole in the wall. As Ratcliff (1984) notes, “Where Mona Lisa appears in [Tim Revitt’s] film, she may be Leonardo’s or Andy Warhol’s or, deprived of her mustache, Marcel Duchamp’s (p. 62). Him schizophrenic existence races from one identity to the next with rampant speed. (See Figure 2-4.)

We linked the concept of speed in our Racing Thoughts hyperart as BBC’s rapidly moving “Changing Rooms” television series. Set in Great Britain, people have two days to work with designers and a carpenter to redecorate a room in their neighbor’s homes. With a limited budget, they paint, borrow, steal, remake, and appropriate to create the illusion of darting design. Similar to the format of the series, in our collaboration we traded ownership of the spaces that symbolized each contributor’s contributions to the web, empowering the authority to censure them—redesign them—and make something other than they had been previously. Although “Changing Rooms” designers often use the work of artists as inspiration for room design, to our knowledge they have not directly referred to Jasper Johns. Does such connection or link lessen the interpretive process? If so, should it be removed from the original premise of the hyperart? Then again, if such a link is encouraged, this and other seemingly shallow connections could stretch the interpretive process in a new level that may not be mocked with the original premise of the hyperart. For example, we added another layer to our hyperart that BBC “Changing Rooms” designers appear to do anything for the sake of improving the interior design in its rooms, similar to the way specialty stores offer to sell “rooms,” complete with furniture, lighting, and art. Upon further thinking (and linking) we began looking critically at the idea and the notion that people’s lives as well as their homes can be improved through an expert’s approach to design. This thinking encouraged us to create a hyperartical link to the history of art education and particularly to the Owtawa Art Education Projects. In the 1930s, Owtawa, Minnesota had a population of 7,500 supported by agriculture and business, and had no previous art program in its schools. Mohln Haggerty, director of the Owtawa project, believed that integrating art into the community would reduce the monotony of

10 An adaptation of the “Changing Rooms” television series.

11 This link took us back to our graduate classes in art education where we were able to actually evaluate a clip paper in our own Hyperart.

Studies in Art Education

46

47
believe that each link creates a vibrant thread in our web of thought and is equally important in our process of knowing. Like Roland Barthes’s idea of “text,” our own hyperspace is “determined, its authenticity is demonstrated, it is spoken according to certain rules (or against certain rules); (text) text is held in language; it makes only when caught up in a discourse... Or again (our) Text is experienced only in an activity, in a production” (1984, p. 57-58). In other words, a barthesian approach to text is indeterministic, open-ended, and endlessly subject to reinterpretation. Acceptance of such an interpretive approach brings us closer to the Latin origin of the word “text”—cerere—which means “to weep.” Like Ariadne’s magic ball of thread in ancient Greek mythology or an intricate spider’s web, the purpose of working in an interpretive context is to feel the experience of finding our way into, out, and through all places in-between.

Why Racing Thoughts? Why HyperText?

Our understanding of the world and our place in it is both mediated and provided by technology on a daily basis. We see through television. We think through the radio, and we communicate through written and digital modes of technology. Our lives are technologically oriented culture that has changed forever the way we see, understand, and derive relevance in our lives.

In effect, John’s Racing Thoughts functions as a visual depiction of the artist coming to terms with the turbulence of extraordinary changes in the world and in his own life and mind (1985). The painting became John’s synecdoche means of linking his identity, experiences, knowledge, and understandings of his life and history of the world through a visual arrangement of image in an allegorical work of art (Rosenell, 1984).

Similarly, a reading of our Racing Thoughts computer hypertext reveals a dizzying array of connections, thoughts, and ideas in our process of inferring and being informed by the work of art in a way that reflects the technosocietal culture in which we live. Unlike John’s painting, the function of our hypertext is not solely a visual or verbal depiction of our process. By providing a topological reference for past and future connections, the hypertext actually composites the process of thinking and associating. Our hypertextual experience with John’s Racing Thoughts provided us with a way to cycle through, connect upon, accept, and discard others’ and our own past, present and future thoughts and interpretations. It reflected the ways our views are affected by the world around us, as evidenced in our references to personal and social issues such as interior design and capital punishment. In other words, working in computer hypertext provided us with a relevant way to see and think about (and through) our interpretation of the painting.

HyperText, Racing Thoughts, and Art Education

Although John’s painting appears to change with each new or different interpretation and question, its physical form remains the same. A true
hypothesis, however, has no set physical form. It exists virtually, and therefore, with each new reading its appearance changes. Not only does hypertext invite change, it compels, requires it, and functions as a result of it. In truth, we continue to add and change our Reading Thoughts web as we analyze it in this article—seeing opportunities missed and re-examining original premises. Writing extensively on the use of hypertext in literary composition, George Landow (1992, 1994) of Brown University views hypertext as a means for elucidating multiple possibilities:

One of the most interesting and exciting things about hypertext appears in the way it offers us a means of looking a short way into one or more possible futures... Equally important, it permits another glance, a reconsideration of aspects of our past and present, because even a brief experience of reading and writing in a hypertext environment dematerializes and demystifies the culture of the printed book. The strangeness, the novelty, and the difference of hypertext permits us, however transiently, and however ineffectively, to de-center many of our culture's assumptions about reading, writing, authorship, and creativity. (Landow, 1992, p. 202)

Similarly, using hypertext to explore the content of a work of art as we did in our Reading Thoughts web may serve to demystify or at the very least engage an inclusive and collaborative interpretation experience through discourse, creativity, and the production of meaning. A first look at a Storyspace™ view of a hypertext is often daunting if not a little dizzying. Some may even say that hypertext is so complex that it reminds them of a scattered and cluttered room. (See Figure 3.) The very messy, complex nature of hypertext may in fact be the key to its use as a successful educational approach in art education.

Crites and Caines (1997) state, "We are meant to learn from naturally complex and "messy" experiences" (p. 11). This idea seems similar in an illustrated domain of knowledge as suggested by Felteovich, Spino, and Coulson (1995). Spino and Jelting note, "As content increases in complexity and illumination, increasingly greater amounts of important information are lost with "traditional" linear approaches" (cited in Maddux, Johann & Willis, 2001, p. 156). In addition to the belief that our minds tend to function in orderly patterns or fashions, deep and inventive thinking is often divergent and sinewy and results from seemingly inextricable conflicts, obstacles, and problems. Classroom experiences that promote complication and ambiguity are more likely to inspire meaningful and relevant ways of knowing than those art education practices that are linear or compartmentalized.

According to Arthur Eliaud (2003), some textbooks writers and lecturers make the mistake of "artificially reordering" domains for the purpose of simplifying the learning that is to take place. For example, "When instruction misrepresents the level of ambiguity that may be characteristic of a work of art, its possible meanings are lost to the learner" (p. 11). Similarly, artmaking is rarely a neat or linear experience. "By placing an artist within a tradition of artmaking, teachers help students realize that "art comes from art"—that all artists depend upon models and prior artmaking" (Walker 2001, p. 97). Artists either learn or are taught to embrace obstacles and challenges and to welcome mistakes as possibilities for expression or inventiveness. We believe that studying and learning about art and artmaking should echo this ill-structured, complex, and ambiguous process.

Whether through an instructional, reflective, or interpretive perspective, the use of computer hypertext may serve as a model for the kinds of divergent and inventive thinking integral to the study and making of art. Interactive computer hypertext is one way of seeing while exploring, of witnessing while performing, and of connecting while blundering.

Hypertext is before anything else a visual form. Hypertext embodies information and communication, artistic and affective constructs, and conceptual abstractions alike into symbolic structures made visible on a computer-controlled display. Hypertext offers readers/viewers the ability to alter the original text [art] through their choices—shifting the way humans think. (Joyce 1993, pp. 19-22)

Indeed, hypertext is one way of taking an object, doing something to it, and doing something else to it—just as John did by re-visualizing his own 1980 Taurus Decal 1 and, Edward Munch's 1960-42 Between the Clock and the Bed in the heavily hatched surface of Racing Thoughts. In addition, John's appropriated a figure from The Temptation of St. Anthony in Matthias Grünewald's Isenheim Altarpiece and placed it into Racing Thoughts by pasting it on its side and camouflageing it with various layers of paint, texture, and line. John's depictions of these and other historical works, his own past images, and personal objects suggest that he has turned himself into his own subject. For example, in Racing Thoughts, the viewer assumes the artist's vantage point of sitting in a bathtub. The bathtub pictures are generally interpreted as works in which John's naked and alone in his tub, contemplates the course of his adult life both as a man and artist—his art (the Flags and images from Fraziers/Fizzles), his dealer (the puzzle-piece image of the young Leo Castelli), his preoccupation with other art (the Mona Lisa and Barnett Newman's unlined lithograph), his possessions (the ORB port), and his aging body and mortality (W.E. Hill's pretty white ugly mother-in-law image and the skull and crossbones from the avalanche warning sign). (Freiman 1997, p. 86)

From this vantage point, John's life and self, like his artistic creations, are heavily textured constructions, rich with meaning and significance. Through the process of creation, John's identity is a construction, assembled from a multitude of references to other people, places, ideas, and images. (See Figure 4.)
Our hypermetamorphic construction was a source point from which we were only to view but also to participate in our learning, understanding, and ultimate interpretation of John's painting. Unlike a linear approach to interpreting Racing Thoughts, our hypermetamorphic experience provided the increase in complexity and ill-considered ideas called for by (Spino and Johnstone) (1980) cognitively flexible theory. This theory focuses on "the ability to spontaneously reconstruct one's knowledge in many ways in adaptive response to radically changing situations" (p. 105). When discussing the application of computer technology in the theory, Spino and Johnstone concluded that only hyperscripted systems that consider the human characteristics of fluidity are capable of providing advanced ways of knowing and learning. Similarly, Alten and Tollefson (2006) call for systems "minimally that encourage collaboration, extension and constructive learning, and are used in authentic learning contexts" (p. 309). Johnson (2008) considers mindfulness to be "soft awareness that enhances critical thinking, amplifies cognitive functioning, assists in metacognitive awareness, is penetrable for use in a variety of situations, and is learner controlled" (cited in Alten and Tollefson, 2001, p. 308). One use of StoryspaceTM for the purpose of investigating Racing Thoughts offers an example for similar ill-structured, constructive ways of knowing in art education. Additionally, our Racing Thoughts hypermet was a cognitive map of our interpretation journey. In an analytical process of reading, rearranging, and, in contrast, re-mixing our web we were forced to "think about the concept in a concrete and complete fashion. Without such clarity, it is impossible to draw the relationships among all the parts" (Alten and Tollefson, 2001, p. 309).

Summary: Living and Learning in Hypertext

At this point it is important to acknowledge that without the consideration of multiple and alternate links, ideas and thoughts, hypertexts do not necessarily promote meaningful and relevant ways of knowing. An authentic hypertext is created, added to, changed, challenged, and perhaps moved in entirely different directions by both writer and reader (teacher and student). Such empowerment of change and challenge can be liberating for thinking not only to our traditional ways of learning, but also to our traditional ways of teaching. As Landow (1992) suggests, the idea that teachers could witness creativity and independent minds/knowledge from their students may be evolving for some (p. 163-164). Change is a word that spurs fear in some educators across disciplines and grade levels. Many differing trends and political forces for educational improvement affect our lives every day. The adoption of an open, organic, learner-centered approach to instruction through interactive computer hypertext invites that teachers not only embrace and understand that such a shift is in itself a change, but also the significance of what it means to change. Coote and Coote (1997) propose this idea as "if educators changed their minds about how education worked, changes in practice would inevitably follow" (p. 23). This is, if you change how people think and understand, you can change what people do. Hypertext helps teachers and students to see change, participate in the process of change, and discover that "true learning is not static but constantly in a state of change and growth" (Taylor and Carpenter, 2002, p. 12).

Our interest in the process of hypertext is not due to change change comes from our belief that if we encouraged to think hypermetamorphically, consciousness, reflection, reading, and writing becomes important, liberating experiences for teachers and students. Art. In 1995-97 study involving approximately 250 students in one American high school, the use of interactive computer hypertext provided a model for literary learning in an era of technology (Taylor, 1999). From the facilitation of reassessments in the forms of exam projects in Advanced Placement composition development and prose-folios, the most liberatory aspects of the hypertextual art education was the "self" of the students became important and central to their study for the first time.
In other words, the students involved in this study began to see how they could understand and relate their experiences to their "selves," their lives, their hopes, and their dreams. And to the process, they began to see that they had the power to not only direct their study in the course but also direct and challenge their own paths for the future. The students involved in this study liberated themselves through the constructive and interrelational ways of knowing possible through their conceptual experience. (Tate, 1998, p. 284)

12 In the study we used hypermedia to facilitate our interpretation of art. In Tatem's (1998) study, students and teachers used hypermedia for assignment, to assist them in developing Advanced Placement portfolio components and, in the process focus of their own meanings, and for contextual interpretation of activities students were familiar with, and that are teachers are so inevitably in their position, we did not observe specific strategies here.

13 A few notes. In our study, the students were able to articulate their own understanding of art as a process of discovery and exploration, and the role that art has in their lives.