

Computers in the Schools

ISSN: 0738-0569 (Print) 1528-7033 (Online) Journal homepage: <http://www.tandfonline.com/loi/wcis20>

Making Meaningful Connections

B. Stephen Carpenter II & Pamela G. Taylor

To cite this article: B. Stephen Carpenter II & Pamela G. Taylor (2006) Making Meaningful Connections, *Computers in the Schools*, 23:1-2, 149-161, DOI: [10.1300/J025v23n01_13](https://doi.org/10.1300/J025v23n01_13)

To link to this article: https://doi.org/10.1300/J025v23n01_13



Published online: 08 Sep 2008.



Submit your article to this journal [↗](#)



Article views: 89



Citing articles: 7 View citing articles [↗](#)

B. Stephen Carpenter, II
Pamela G. Taylor

Making Meaningful Connections: Interactive Computer Hypertext in Art Education

SUMMARY. When interactive computer technology is used in meaningful and connective ways, it both enhances and provokes the focus and purpose of art instruction and learning to be expansive and personally relevant. In this paper, we describe an approach to interpretation and curriculum design that requires users to make visual and conceptual associations among examples of visual culture, works of art, and content from various disciplines for the purpose of making meaning. A theoretical foundation for using hypertext authoring software to promote an empowering form of art education is provided, as are strategies for constructing rich interpretations of works of art and meaningful curricula. The use of

B. STEPHEN CARPENTER, II, is Associate Professor of Art Education and Visual Culture, Department of Teaching, Learning, and Culture, College of Education and Human Development, Texas A & M University, College Station, TX 77843 (E-mail: bscarpenter@tamu.edu).

PAMELA G. TAYLOR is Associate Professor of Art Education, Department of Art Education, School of the Arts, Virginia Commonwealth University, Richmond, VA 23284 (E-mail: pgtaylor@vcu.edu).

This article is an expanded version of a previous paper entitled, "Interactive Computer Technology and Art Education: The Intentionally Tangled Curriculum." Copyright by AACE. Reprinted from Society for Information Technology & Teacher Education International Conference Annual (2003) with permission of AACE (<http://www.aace.org>).

[Haworth co-indexing entry note]: "Making Meaningful Connections: Interactive Computer Hypertext in Art Education." Carpenter, B. Stephen II, and Pamela G. Taylor. Co-published simultaneously in *Computers in the Schools* (The Haworth Press, Inc.) Vol. 23, No. 1/2, 2006, pp. 149-161; and: *Type II Uses of Technology in Education: Projects, Case Studies, and Software Applications* (ed: Cleborne D. Maddux, and D. LaMont Johnson) The Haworth Press, Inc., 2006, pp. 149-161. Single or multiple copies of this article are available for a fee from The Haworth Document Delivery Service [1-800-HAWORTH, 9:00 a.m. - 5:00 p.m. (EST). E-mail address: docdelivery@haworthpress.com].

Available online at <http://www.haworthpress.com/web/CITS>

© 2006 by The Haworth Press, Inc. All rights reserved.

Digital Object Identifier: 10.1300/J025v23n01_13

hypertext authoring software by teachers and students to create interactive readings and on-going interpretations makes explicit their function as Type II applications. We believe that better ways of teaching and learning result from such interactive, hypertextual experiences with works of art, as they require users to make explicit various connections among various meaningful texts, experiences, and sources. *[Article copies available for a fee from The Haworth Document Delivery Service: 1-800-HAWORTH. E-mail address: <docdelivery@haworthpress.com> Website: <http://www.HaworthPress.com> © 2006 by The Haworth Press, Inc. All rights reserved.]*

KEYWORDS. Hypertext, connections, interpretation, meaning, work of art, Storyspace™, art education, curriculum, associations, non-linear

Making meaning is central to what artists do. In art education, students engage in the pursuit of their own artistic creations through the use of technique and media in the process of understanding, relating, and responding to meaning in their and others' works of art.

In our own research and teaching, the use of interactive computer hypertext technology enhances and provokes the focus and purpose of art instruction and learning to be more expansive and personally relevant than previous traditional methods of teaching. We use interactive hypertext authoring software to map class discussions, organize unit and lesson plans, engage in criticism and aesthetics, conduct student research and initiated inquiry, and enhance traditional and online courses (Taylor, 2000; Taylor & Carpenter, 2002). At the center of our approach, users construct interpretations of works of art and curriculum design by making visual and conceptual associations. Using the computer, they see and make interactive links to visual culture, works of art, and content from various disciplines.

We prefer to use hypertext authoring applications like Storyspace™ and Tinderbox™ to generate visual maps of associations and links. (Storyspace™ and Tinderbox™, computer hypertext authoring software, are available from <http://www.eastgate.com>.) These applications enable original authors and subsequent readers to visualize the nonlinear complexity of interpretations and make their own additions to the hypertext. Our approach would not be possible without the technology and therefore resembles Type II applications of technology (Maddux, Johnson, & Willis, 2001). Using the software in this way makes avail-

able and supports “new and better ways of teaching and learning” (Maddux, Johnson, & Willis, 2001, p. 101).

Jonassen, Howland, Moore, and Marra (2003) describe a study in which seventh-grade students used Storyspace™ in an attempt to discover “rhetorical constructions, cognitive strategies, and social negotiations students engage in when constructing their own hypermedia documents” (p. 171). The construction of such “hypermedia knowledge bases is constructive,” “very active and very intentional” (Jonassen et al., 2003, p. 174), and “among the most engaging and complex forms of problem solving that students can accomplish” (p. 175). Jonassen et al. (2003) also point to Smith (1992) and collaborative multimedia documents created by third- and sixth-grade Navajo children in a reading improvement program in which the children created a hypermedia version of “a familiar, traditional Navajo story” (Jonassen et al., 2003, p. 177). These children developed ownership of the material and the collaborative approach (Smith, 1992, in Jonassen et al., 2003, p. 177). Such examples demonstrate that when students create interactive readings and on-going interpretations of texts with hypertext authoring software, the value of Type II applications is made explicit. In what follows, we provide a theoretical foundation for interactive computer technology and demonstrate how an empowering form of art education is possible through the creation and presentation of interactive hypertexts.

THEORETICAL FOUNDATION

Our approach is based upon theories of textuality, the reader/writer relationship (Barthes, 1970/1995), and uses of hypertext for interpreting works of literature (Landow, 1992). Barthes’ notion of writing the work into the text of our lives (Barthes, 1970/1995) is central to how we encourage pre-service teachers, veteran teachers, and ourselves to make meaningful connections among ideas, themes, information, works of art, and visual culture. The use of hypertext authoring software to assist students in the deconstruction of literary texts to reveal their interconnectivity to other texts (Landow, 1992) also informs our work.

Hypertext author and theorist Michael Joyce (1991), in the directions for reading his hypertext fiction *Afternoon, A Story*, encourages readers to interact with the text through the “pursuit of texture.” Analogous to rubbing the surface of a text to discover deeper meaning, association, and connection, readers of hypertexts reach beyond superficial or literal meanings of words, phrases, and ideas to deeper, conceptual, and sym-

bolic meanings. This approach enables the interpretation of works of art when the goal is to construct meaning by building connections from the work of art to other texts (Barrett, 1994; Carpenter, 1999). Helping students develop a desire to find visual, conceptual, and contextual information they associate with a work of art is key to their construction of meaningful intertextual readings. Because of the interconnective nature of hypertext authoring software—its varied and visible links, arrows, and spaces that contain text, images, sound, and video—users become compelled to make many more connections than they would without the technology (Taylor, 2000). Therefore, interactive computer hypertext stimulates “active intellectual involvement on the part of the user” (Maddux et al., 2001, p. 101), a characteristic of Type II computer applications.

What modes of working with interactive computer technology enhance teacher thinking and planning? What uses of computer technology challenge students and teachers to think critically, creatively, and connectively? What ways of teaching, learning, and knowing does interactive computer technology make possible?

RACING THOUGHTS: A COLLABORATIVE HYPERTEXT

For several weeks, we engaged in a two-person collaborative hypertextual reading of Jasper Johns’ 1983 painting, *Racing Thoughts* (Carpenter & Taylor, 2003) to demonstrate how working in a hypertextual environment compels expansive and connective thinking in art criticism and interpretation. Johns used a combination of encaustic paint—pigment mixed with melted beeswax and resin—and collage techniques on a 48 × 75 1/8 inch canvas, to represent such everyday objects as bathroom fixtures, vases, nails, tacks, and tape alongside or piercing through photographs, a heavy wooden door, the Mona Lisa, and a skull and crossbones warning sign. Johns raises questions about relationships between the familiar and the sacred, the sublime and the fatal, and reality and art. The painting and its title *Racing Thoughts* epitomize the kinds of thoughts and associations we engage in with interactive computer hypertext; we approached Johns’ work as a text to be read, re-read, interpreted, and re-interpreted.

Using the computer application Storyspace™ we began a hypertext with Johns’ work at the center of our inquiry. We added and linked various spaces of information, ideas, and images we discovered or were inspired to research and share with each other. Our process involved

writing and re-writing—creating and re-creating—following Barthes’ (1970/1995) idea that “the goal of literary work [or a work of art] is to make the reader no longer a consumer, but a producer of the text” (p. 4). In Storyspace™, writing spaces are boxes that serve a dual function. Each space can contain information—text, images, video, and audio—and other writing spaces. Spaces, words, phrases, and images can function as buttons that can be hyperlinked to other spaces within the Storyspace™ document and URLs on the World Wide Web. Each reader of a Storyspace™ document selects the order in which the spaces are read and, in so doing, creates a unique path throughout the document. Readers may create new spaces or add content to existing spaces. We have found that this adaptable characteristic of Storyspace™ “acts as a compelling device—challenging the readers to change the structure of the original web [hypertext] and thereby make it more than it was before they encountered it” (Carpenter & Taylor, 2003, p. 41). By placing readers in an interactive position, the process of reading a Storyspace™ hypertext encourages involvement and creative exploration.

Taking turns, we each made additions to the hypertext and returned it to the other by way of e-mail. When the attached files became too large for our dial-up modems to handle, we uploaded the document to a WebCT™ storage site, but could have easily used any similar site, such as Blackboard™ or a server. We color-coded our additions to help us track both our individual contributions and the progress of the developing hypertext. Like Johns, we produced preliminary sketches, looked at other images, and implemented various analysis techniques. We made critical comments about each other’s comments, those of critics, and images within the evolving hypertext.

We questioned Johns’ use of *trompe l’oeil*—a style of painting used to depict objects in a photographically realistic manner—to create thumb-tacks and masking tape as a means of displaying a photograph of Leo Castelli and other objects in the painting. Perhaps the world’s most influential art dealer before his death in 1999, Castelli fostered Johns’ career as well as those of other artists including Robert Rauschenberg, Roy Lichtenstein, Claes Oldenburg, James Rosenquist, Bruce Nauman, Richard Serra, and Andy Warhol. In *Racing Thoughts*, the thumb tacks and masking tape devices give the appearance of a quick posting or display on a bulletin board. We added a space containing John Berger’s (1972) reference to such tactile bulletin board postings as a “means of reproduction used politically and commercially to disguise or deny” (p. 30) and discussed how we also arrange, change, and reorganize im-

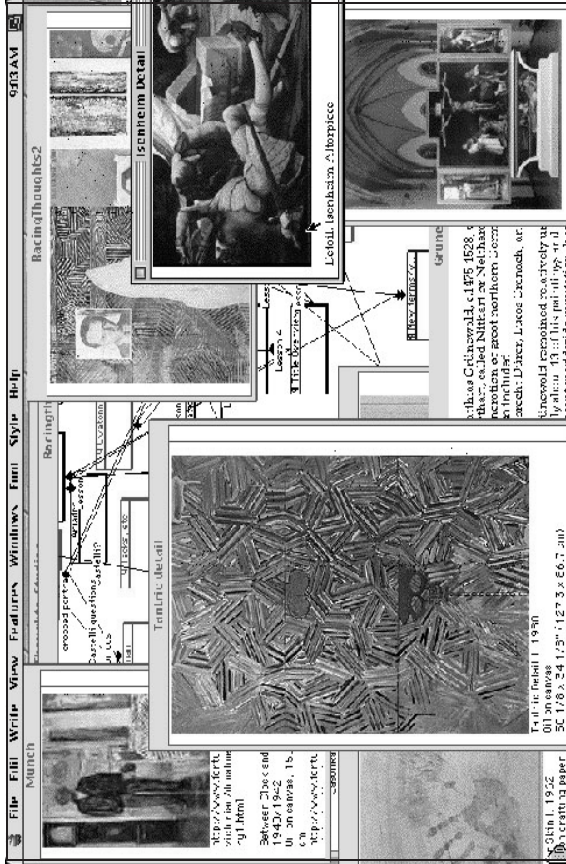
ages, notes, and cartoons on our own office bulletin boards through this simple “tacking” device.

We added a space containing artist John Baldessari’s use of a tacking device in his *Specimen (After Dürer)*, an enlarged image of an Albrecht Dürer drawing *Stag Beetle* (1505) impaled with a giant specimen pin (J. Paul Getty Museum, 2000). The pin became a ruse to represent parody and humor regarding the sacredness of the art object. Further linking in our *Racing Thoughts* hypertext document inspired us to share the ways that Johns used images of tape in the painting as a mounting device for the Mona Lisa, reminding the viewer that she was and is everywhere—posters, cards, advertisements, movie videos—and not just in the Louvre.

We interpreted *Racing Thoughts* as Johns’ symbolic means of linking together his identity, experiences, knowledge, and understandings of the history of art and the art world through a clever arrangement of images in an allegorical work of art (Russell, 1984). In effect, the painting functions as a visual depiction of the artist coming to terms with the turbulence of extraordinary changes in the world of art and in his own life. Our *Racing Thoughts* hypertext represents a dizzying array of directions, connections, and ideas. Unlike Johns’ painting, our hypertext does not function solely as a visual or verbal depiction of this process. The physical form of Johns’ painting remains the same but, because our hypertextual reading of the painting exists virtually, it changed each time it was opened.

Because we were reading both the work of art and the hypertext interpretation for “texture,” the other person’s latest responses were also part of the text and therefore available to be read and rewritten. Through this virtual collaboration, we viewed the work of art from angles that each of us individually could not provide for ourselves. The work, both through and as hypertext, became more to us collectively than it could have been to either of us as individuals. Just as Johns’ applied, removed, and re-applied paint and wax to his canvas, we worked and re-worked areas of the hypertext through examination and re-examination of our contributions. Our process was a creative and collective approach to “rewriting the text of the work within the text of our lives” (Barthes cited in Scholes, 1989, p. 8). As such, it demonstrates how Storyspace™ and other hypertext authoring software can be used to embody characteristics of Type II applications. Our use of it placed us—the users—“in charge of almost everything that happened” and in “control over the interaction between user and machine” (Maddux et al., 2001, p. 101). Figure 1 is one of numerous possible screen shots of our *Racing Thoughts* hypertext document. The computer hypertext we created has no beginning

FIGURE 1. Screen shot of our Jasper Johns' Racing Thoughts hypertext.



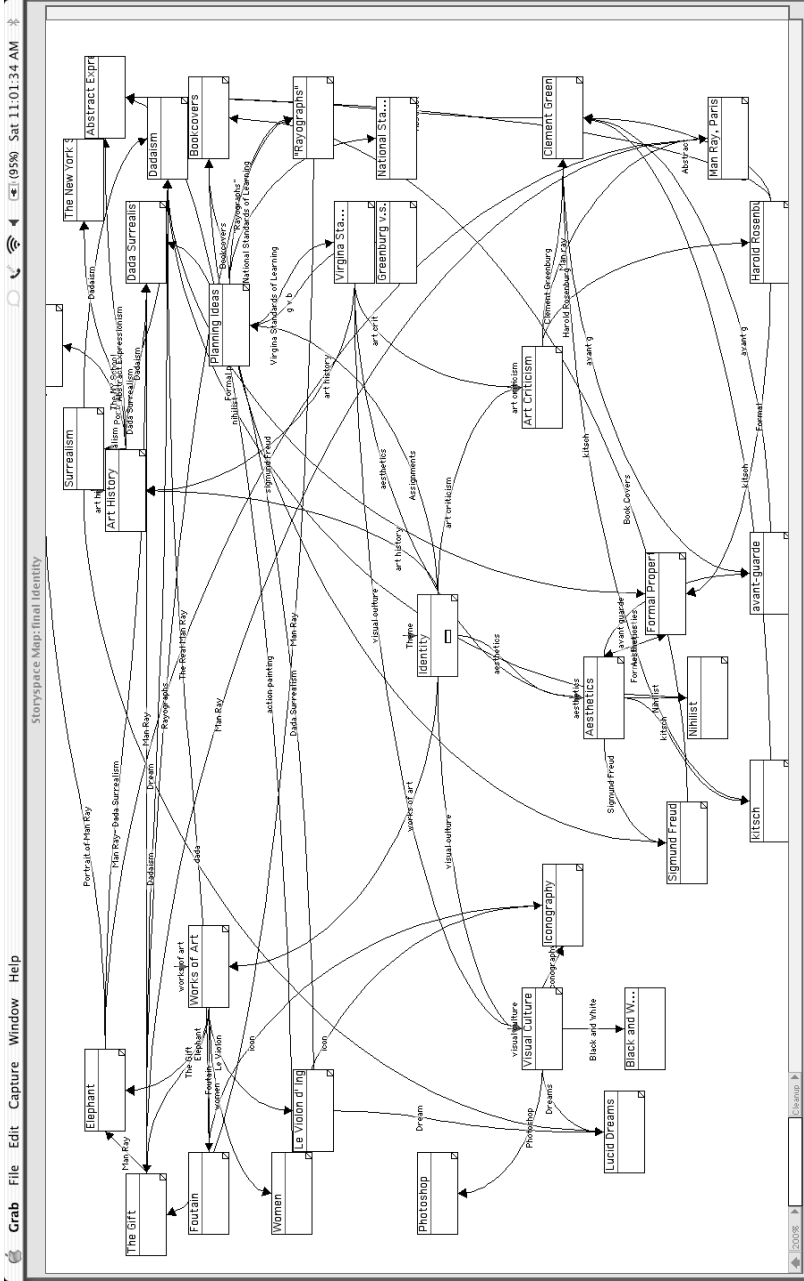
and no end. In order to read this or any hypertext, a user may simply jump in at any point—in any space that contains writing, images, or video—and make contributions to the discourse and discovery of the text of the work of art.

Some of the associations we created in our *Racing Thoughts* hypertext distorted our vision of Johns' painting and of our understanding of specific ideas and information related to it. Other connections in the hypertext took us to places far away from our original premise. The process of critically reflecting on an interpretive journey—the act of evaluating a hypertext by going back and forth between the work and the various connections—informs and ultimately alters our ways of knowing.

Our ongoing collaborative hypertext interpretation of *Racing Thoughts* reveals how interactive, hypertextual experiences promote the visualization of connections among various meaningful texts and sources, both real and imagined. Initially, the connections we made from Johns' painting to Matthias Grünewald's *Isenheim Altarpiece* (c. 1513-15), gallery owner Leo Castelli, and the British Broadcast Corporation's (BBC) television series "Changing Rooms," revealed possibilities for constructing a connective interpretation of the painting. This approach serves as a useful model for interpreting any work of art or visual text. We have observed that such connections created through the construction of hypertexts seem to accelerate the thinking of teachers and students we work with as they read the contributions made by other readers.

Because of the nature of interactive computer technology, written interpretations, research, visual images, video clips, and audio files are easily placed within interactive hypertext documents. The inclusion of various forms of information demonstrates the complexity of and possibilities for thinking about interpretations and curriculum content. Visual maps of hypertexts reveal this complexity and illustrate how information related to the meanings of works of art is often difficult to organize in a linear manner. When users create connections in a Story-space™ hypertext, the application simultaneously constructs a map of the document (see Figure 2). Viewed in this way, connections between content in the art curriculum and other school subjects are more clearly seen. Visual maps of hypertextual curricula enable students and teachers to see multiple ways in which art content discovered through the interpretation of works of art is interconnected with equally meaningful content from other disciplines. Because we encourage teachers and students to look to the text of their own lives to make sense of works of art,

FIGURE 2. Screen shot of a student Storyspace™ hypertext in map view.



examples of visual culture and other contemporary sources also become meaningfully connected content. As a result, hypertexts created by teachers and students demonstrate how content revealed through the interpretation of a work of art has relevance to their own lives.

The creation of meaningful works of art, interpretations, and curricula encourage and require diversity, multiplicity, and alternative modes of working and knowing. Through the use of hypertext authoring software, such interpretations also require multiple means of approaching, researching, and presenting content. Rather than approaching the integration of technology in art classrooms as yet another initiative or responsibility for the art teacher, or as another tool for creating visual images, we see the computer as a fundamental component of thinking and we envision the use of computer technology as a means to facilitate visual and verbal learning, knowing, and understanding.

An authentic hypertextual approach to thinking and learning in art must involve students, teachers, and curriculum designers in the process of seeing connections in and between various experiences, both real and imagined. In the classroom, collaborative computer hypertextual approaches to interpretation and curriculum design are simultaneously constructed and mapped electronically. Hypertexts created in this way inform ways of teaching and learning, and promote deeper understandings about the relationships between symbols and meaning, research and content in instruction, and the various disciplines and subject areas within the broader school curriculum. Data from personal experiences, research, and art teacher preparation courses have revealed to us that computer hypertext used in this way alters how teachers and students know, understand, and think in the world.

STRATEGIES FOR MAKING MEANINGFUL CONNECTIONS IN PRE-SERVICE TEACHER PREPARATION

We have developed strategies that enable art education students and practicing art teachers to engage their own racing thoughts for the purpose of constructing rich interpretations and meaningful, integrated curricula (Taylor & Carpenter, 2002). From our exploration of interactive computer technology with elementary, middle, high school, and university art classes, we have derived practices and criteria to assist current and future art educators in the design of interactive computer assignments like the *Racing Thoughts* example. Because our use of Story-

space™ establishes it as a Type II application, each of these approaches inherently places the user at the center of the learning experience. We have found the following four approaches to be effective with pre-service art teachers (Taylor & Carpenter, 2002) and secondary, art appreciation, and art criticism students engaged in art criticism and interpretation.

Unit templates. Units of instruction in art education are often centered on big ideas gleaned from works of art that students explore through lessons and activities that include the contextual study of art, artists, and their own lives. Pre-service teachers begin the construction of such units by completing a template that contains spaces for a unit overview, goals, objectives, information about the art and artist, lesson outlines, state and national standards of learning, images, video and audio files, resources, vocabulary, content from other disciplines, visual/popular culture, and assessment strategies. Links are made between the spaces located within the unit of instruction as teachers discover new ideas and connections. Through the creation of hyperlinks, additional connections can be made to other unit hypertexts or Web sites. Typically, students begin with the study and interpretation of a work of art, and distinguish major human relational ideas represented in the artwork. From these ideas they formulate a theme for a unit of instruction. Learning goals and objectives are developed from these ideas and then linked directly to national, state, and district standards and curricula. Next, individual lessons that support these goals are designed. In the process, students make links to resources, ideas, works of art, personal experiences, and other lessons.

Collaborative hypertexts. As in our *Racing Thoughts* experience, students work together to explore and interpret a work of art and ultimately distinguish major human relational ideas. From these ideas groups of students formulate a theme for a unit by following a unit template. Unlike pitfalls associated with other forms of collaborations such as unequal work distribution, exclusion of some voices or ideas, and incompatible work schedules, collaborative approaches to hypertext encourage diverse and personal contributions from all participants. Because of the nonlinear and connective nature of collaborative hypertextual experiences, all ideas are welcomed and included in the hypertext. Students do not need to be in the same physical space at the same time to take turns working on their hypertexts, and contributions can be easily tracked or marked in the software through such strategies as color-coding and/or type style.

Intertextuality tasks. In this approach, students begin by reading critical essays written about an artist or a work of art and then make thematic, technical, and contextual connections. From the information contained in these connections, pre-service teachers then begin the process of designing a unit of instruction. A variation of this approach requires them to begin with a blank template in which they organize a unit around a work of art or a theme. First, they collaborate to interpret a work of art for the purpose of developing plausible themes. Next, they decide for themselves whether to place either the initial work of art or one of their themes at the center of their unit. They then make two or more specific connections to visual, thematic, technical, and contextual content. These initial hypertexts later develop into units of instruction.

Hypertag criticism. Similar to the procedure we used to create our *Racing Thoughts* hypertext, pre-service teachers work with a partner and take turns creating, adding, making links, and responding to the other's hypertextual contributions. To help begin this process, we have discovered that pre-service teachers prefer to start with a template of some sort and specific requirements for the number of writing spaces and responses they must include. After the second exchange or "tag," the amount of information, links, and responses typically exceeds student expectations.

FINAL THOUGHTS

The process of creating hypertext documents with pre-service teachers requires them to make visual, conceptual, and contextual connections among information from a variety of sources and promotes a way of knowing and being in the world not present in traditional curricula. This way of knowing and being is made possible through the use of hypertext authoring software such as Storyspace™ and makes explicit its function as a Type II application. The process of discovering, linking, and making connections for the purpose of creating meaning is central to our use of computer hypertext in art education. If used as we have described here, hypertext applications provide a space, a site, and a tool for making explicit how learning and knowledge are not static, but are in constant states of growth, change, and renegotiation.

REFERENCES

- Barrett, T. (1994). Principles for interpreting art. *Art Education*, 47(5), 8-13.
- Barthes, R. (1995). *S/Z: An essay* (R. Miller, Trans.). New York: Hill & Wang. Original work published in 1970.
- Berger, J. (1972). *Ways of seeing*. London: BBC and Penguin Books.
- Carpenter, B. S. (1999). Art lessons: Learning to interpret. *Educational Leadership*, 57(3), 46-48.
- Carpenter, B. S., & Taylor, P. G. (2003). *Racing Thoughts: Altering our ways of knowing and being in art through computer hypertext*. *Studies in Art Education*, 45(1), 40-55.
- J. Paul Getty Museum. (2000). *Departures: 11 artists at the Getty*. Los Angeles: J. Paul Getty Museum.
- Jonassen, D. H., Howland, J., Moore, J., & Marra, R. M. (2003). *Learning to solve problems with technology: A constructivist perspective*. Upper Saddle River, NJ: Merrill-Prentice Hall.
- Joyce, M. (1991). *Afternoon, a story* [Computer disk]. Cambridge, MA: The Eastgate Press.
- Landow, G. P. (1992). *Hypertext: The convergence of contemporary critical theory and technology*. Baltimore: Johns Hopkins Press.
- Maddux, C., Johnson, D. L., & Willis, J. W. (2001). *Educational computing: Learning with tomorrow's technologies* (3rd ed.). Boston: Allyn & Bacon.
- Russell, J. (1984, February 3). Jasper Johns show is painter at his best. *The New York Times*, C22.
- Scholes, R. (1989). *Protocols of reading*. New Haven and London: Yale University Press.
- Smith, K. J. (1992). Using multimedia with Navajo children: An effort to alleviate problems of cultural learning style, background of experience, and motivation. *Reading and Writing Quarterly*, 8(3), 287-294.
- Taylor, P. G. (2000). Madonna and hypertext: Liberatory learning in art education. *Studies in Art Education*, 41(4), 376-389.
- Taylor, P. G., & Carpenter, B. S. (2002). Inventively linking: Teaching and learning with computer hypertext. *Art Education*, 55(4), 6-12.