Holistic Teaching of Art with Technology: Practical Models and Enlarged Theory

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Introduction

This article aims to investigate the potential of holistic teaching of art with technology, exploring how art teachers can integrate art with an array of digital media in the larger context of holistic pedagogy. Holistic education proposes nurturing the wholeness of individuals, helping learners to make sense of their lived experience and to act responsibly both to themselves and to the community. Many art educators embrace this value in their art teaching practice, believing that the unity of individuals can be cultivated through "a transformative engagement in visual arts" (Campbell, 2006, p. 29). This belief implies a model for teaching and learning which fosters inquiry into life, seeking the alignment of body, mind, and spirit through learners' visual expression and communication (Campbell, 2005; Carroll, 2006; Gradle, 2009; Kind, Irwin, Grauer & de Cosson, 2005; London, 2006).

In response to the impact of changing information and communication technologies (ICTs), art educators and teachers are asking questions about how learners make sense of their learning experiences through an array of digital resources and media (Flood & Bamford, 2007; Freedman & Stuhr, 2004; Gregory, 2009). Approaching such questions from the perspective of the relationship between technology and literacy, some scholars have articulated an enlarged set of literacy skills and practices as a proficiency that meets societal needs (Hobbs, & Jensen, 2009; Stankiewicz, 2004, Stokrocki, 2007). While research on definitions of literacy has expanded beyond a single-minded focus on linguistic proficiency to highlight multiple forms and purposes of communication in the information age, some scholars of literacy instruction are nevertheless drawn to develop sets of generic and prescriptive principles of specific competencies with an imperative that new ICTs require new literacy skills to exploit learners' potential. Though this

understanding of learning and technology does offer a guideline or checklist for the integration of technology into art and other subject areas, identifying competencies or techniques in isolation does not take account of the larger context of practice and may cause educators to ignore the learning activities and environments drawn from learners' social and cultural experiences.

An alternative is to embrace a holistic understanding of technology in which the uses of ICTs are situated both in learners' personal knowledge structures and in a network of learning relationships. For example, one approach is to have classrooms in which teachers engage students in projects that integrate across art forms in both digital and material forms, and not focus on skills *per se.* A major study of primary schools in Ireland (Casey, et al., 2009) examined "a situated approach to literacy" (p. 6) and focused on the social contexts of classroom activities in which digital media were used. The study was pursued through a year-long investigation of classroom practices, interviews, and student-produced artifacts. It not only found that students' learning of technological skills was enhanced along with their participation in digital media and learning, but also reported increasing, productive collaboration among teachers and community members. In fact, this study provides an illustration showing the understanding of technology in education is not merely about the individuals' competencies; more importantly, this understanding is contextual and interrelated as an inquiry into the wholeness of learning experience in the age of digital culture.

Other recent research resonates with Casey and his colleagues' findings that a holistic approach to classroom practices involving digital media and the arts can make learners more complete and is relevant to all types of learning (Bruce & Reynolds, 2009; Eshet-Alkalai & Chajut, 2009; Ohler, 2008; Stasko, 2009). However, while the transformational power of art in holistic learning is recognized across disciplines (Carroll, 2006; Miller, 2006), little attention has

been paid to the development of theoretical and practical understanding of technology as part of a holistic pedagogy (Bruce & Bishop, 2008; Gagel, 2006; Lankshear, Snyder, & Green, 2000; Seemann, 2003), as well as to the roles of art in relation to technology within this pedagogical framework. As a result, we have observed two major barriers to using art and technology integration in a more holistic way. One is that we lack empirical evidence to show educators and teachers what is possible and how to link between everyday details and pedagogical ideals. The second major barrier is that we lack adequate conceptualizations of how technology, art, and holistic learning intersect. To address these two barriers, we present a study of three secondary art teachers' holistic engagements with digital media in their classroom practices (Lin, 2008) and a discussion on how holistic art education can be realized with new ICTs. Specifically, we identify the key characteristics derived from the three teachers' holistic engagements in teaching art and then use these concrete experiences to examine learning as lived experience, technology as means for inquiry, and learning relationships as groundwork for cultivating a unified whole.

Holistic Engagement in Action

Methodology and Demographics

This study examined three secondary art teachers' pedagogical beliefs as manifested through their teaching practices with digital media. Viewing the art teachers as three unique instances of educational experience, case studies were conducted to explore the conditions of specific locations, learners, and factors that shape practices. Two major research questions were: How do these teachers conceptualize, implement, and interpret their uses of digital media in teaching art? and How do the social contexts of teaching and learning influence these teachers' teaching practices with art and technology? From three different Midwestern secondary schools, all three participants—Liz, Chris, and Sara (pseudonyms)— shared attributes: at least five years

teaching experience in art, confidence and competency in incorporating technology into their art teaching, and high regard from their communities.

Liz had taught for over 13 years in the larger of two public high schools in a university town. Chris was employed in a rural town at a high school that has a reputation for integrating technology across subject areas, whereas Sara taught in a junior high school located on the urban fringe of a mid-sized city. The study observation took place in Liz's class of Advanced Photography, Chris's Computer Graphics and Multimedia classes, and Sara's Video Documentary class. The research data consisted of field notes and records of classroom observations and a series of semi-structured interviews, as well as photographs of classroom activities and copies of teachers' teaching materials and student productions. Data analysis involved a three-stage process of coding, case report creation, and cross-case analysis that facilitated the study goal of depicting the uniqueness of the three case studies. Due to the scope of this article, only selective description about how these teachers approached their art teaching with technology in a holistic manner is presented.

Creative and Critical Inquiries

The facilitation of artistic production and critical reflection through digital media are two major components in these teachers' classroom practices. They consider the experience of making art an avenue through which learners can understand how technology serves the intents of artistic expression and communication. Sara asserted that "to be able to understand what you see, you have to understand how digital images are made" (Sara, personal communication, March 17, 2007), while Liz explained her belief "that having students exposed to the process of making digital images helps them to question the authenticity of things, like information or images" (Liz, personal communication, May 10, 2007). Liz viewed the computer and its wealth

of programs as an art-making medium just as the camera is the tool for photography. For Liz, artistic inquiry is the process of solving visual problems. She encouraged students to consider how the Photoshop effects represent their intentions by saying, "think about the message that students can convey with the use of imagery; think about what certain things you can do to have an impact on your audience in terms of symbols, colors, or messages" (Liz, personal communication, May 4, 2007)

As digital media provide instant visual effects for students to experience the immediate trial and error of technological outcomes, the teachers are able to focus on the students' ability to inquire into their own learning processes. For Chris, such a reflective inquiry into lived experience helps to spark students' interest in art and cultivate students' artistic sensibility through their interests in digital media:

> I know that very few students will go into game design or animation, but this learning experience of 3D modeling may help them to develop an appreciation of those things that they run into, especially when they made those creatures and got to do just a few seconds with the movement. They maybe appreciate that more when later they watch movies. (Chris, personal communication, March 23, 2007)

These teachers are also interested in asking their students questions that lead students into a critical analysis of and reflection about the images they are consuming and producing. For example, Liz provided exposure to both digital and conventional photography and then encouraged students to rationalize their decisions on whether they preferred making art at the computer or in the darkroom. Using prior photographic knowledge to teach Photoshop, Liz would say, "Well, here's how your sepia tone looks in Photoshop" (Liz, personal communication, May 4, 2007) or "we've worked with solarization in a darkroom with the chemicals and the lights, and here's how you do it in Photoshop" (Liz, personal communication, May 4, 2007). The classroom dialogue played a large role in Liz's instruction as she constantly

facilitated student discussion on the pros and cons of hands-on and digital photograph manipulation and representation, along with the restraints and potentiality of technology.

Just as Dewey (1938) observed that knowledge is derived from the processes of continuous inquiry into experience, these teachers' practices linked knowledge transformation and construction to their students' background, potential, and experience through an interaction between creative production and critical reflection. Beyond the scope of classroom activities and art knowledge, these teachers' beliefs in and practices of art and technology integration take into account the larger contexts of teaching and learning in response to the changing development of ICTs. Their teaching knowledge is tied to situated learning contexts (Bernstein, 1996), and their act of teaching is based on their repertoires of practical understanding of what works best for their students (Clandinin & Connelly, 1995; Zhao, 2003).

Inquiry into Life

With regard to the totality of learning experience, these teachers' understanding of what students should learn does not focus merely on the imagery itself but also on how students' encounters with images as a unified learning experience can spark connections with their lives. Many of their teaching incidents engage a thematic approach to sociocultural issues and embrace learning resources "from a variety of disciplines from both within and beyond the visual arts" (Delacruz & Dunn, 1996, p. 77). By incorporating sociocultural issues into their teaching, these teachers encouraged their students to explore their own strengths and identity, to acknowledge the social and cultural connotations embedded in images, to examine the sociocultural issues in their daily existence, to use digital media as an artistic tool for making social statements, and to take action to voice their opinions on issues with which they are concerned. For example, Liz wanted her students to go into their local communities and use digital cameras to portray stories

about their community members, whereas Chris incorporated service learning into his computer

graphics class, asking students to pitch their ideas to simulated clients, the local fire and police

departments to publicize public safety. Likewise, Liz and Chris conducted a digital photography

and a video project, respectively, to explore identity through the making of self-portraits:

> I'm always really interested in high school self-portraits. I think it's a great way to see what's going on in [high school students'] brains, like what's their concepts of themselves…So, [the project of digital self-portrait] forces them to think about their values, cultures, and things they care about. It's not only about self expression; they learn to be aware of the connotations of images. It is an exercise in getting them to think about the codes and symbols that go into their visual experiences. (Liz, personal communication, May 4, 2007)

> We do a lot of projects where [students] are exploring themselves about where they are right now and their identities. We have done a music video self-portrait project [in which] they've learned to express themselves visually [and] make conscious decisions on their choices of music, images, and particular aspects of themselves. (Chris, personal communication, March 23, 2007)

Such an approach embraces a belief that "art education can make a difference in student

understanding of and action in the world and that difference can enrich and improve social life"

(Freedman, 2000, p. 314). Considering digital media as a powerful educational means, all three

teachers take an active stance that provokes student awareness of sociocultural issues, together

with the cultivation of student ability of artistic expression. Derived from a "practicality ethic"

(Delacruz, 2004, p. 8), these teachers strive to develop students' personal and social

responsibility through their visual learning experience and believe art helps students foster the

skills needed to face and manage contemporary life problems. As Liz explained, "Hopefully

when [my students] get out of my classroom, when they do something in their lives, they are able

to connect with their art experience, or to the attitude or process they learned from art" (Liz,

personal communication, May 12, 2007), a sentiment with which Chris and Sara agreed:

> I don't want to just teach the tools and programs; it's very dry. I want [my students] to be able to make connections with their lives through learning technology from art; to

develop a sense of appreciation to art and their lives. (Chris, personal communication, April 17, 2007)

I'm hoping that my class raises questions that make my students start to think differently, not only in my classroom but everywhere. If they can start thinking differently everywhere, then they are going to able to ask questions about their lives. (Sara, personal communication, March 20, 2007)

Realms of Learning for Holistic Engagement in Art and Technology

The three teachers' practical endeavors resonate with Dewey's (1948/1981) observation that artistic activities are "manifested not just in what are regarded as the fine arts, but in all forms of life" (p. 315). Beyond developing students' visual competencies, they embrace a wholeness of experience that intersects with themes such as teacher expertise, student background, environment, teacher-student relationship, connections with lives, and social contexts of learning. Accordingly, we articulate how such themes are interrelated in an attempt to understand how holistic art education can be realized with implementations of new ICTs. We found that these three teachers' practices responded to the nature of holistic education by bringing three intersected realms of learning to the foreground, thus promoting the wholeness of individuals. These realms are: learning as lived experience, technology as means for inquiry, and learning relationships as groundwork for cultivating a unified whole.

Learning as Lived Experience

Artistic practice is a form of life practice; in this sense learning through art helps us to make sense of life as artistic activities are understood within the context of lived experience. As fostering students' meaning making capacity through artistic and aesthetic experience is central to quality art education (Darts, 2006; Gude, 2008), we view the process and creation of artistic experiences as "carriers of meaning" (Jackson, 1998, p. 111) that connect wholeness of life and

artfulness. Recently, with the changing development of ICTs, this value of art has received a growing attention across disciplines in an attempt to implement technology in a more holistic way. Research shows there are increasing numbers of classroom activities and community youth projects approaching digital media as an artistic medium through which learners can express feeling, communicate ideas, and develop literacy skills (Bruce & Lin, 2009; Burn, 2009; Goldfarb, 2002; Goodman, 2005; Levy, 2008). New ICTs can then be seen as media for realizing Dewey's four instincts of the learner (Bruce & Levin, 1997, 2003; Levin & Bruce, 2003). Dewey (1916/2001) described the impulses (or instincts) of the learner as the social instinct, the instinct of making, the instinct of investigation, and the expressive impulse that sparks active learning to thrive. To participate in the digitally mediated world in which they live, individuals need to have the experience of using digital media to describe their understanding of and relationship with the world, to engage and communicate with others, and to learn to act responsibly to the self and the world.

This educational approach may seem common in general education but has become more significant in today's digital learning environments. That is, rather than following particular sets of skills or concepts in framing learning outcomes, a holistic engagement with technology indicates that learning is embedded within and around the impulses or instincts of the learner and connects to multiple aspects of lives, including social, cultural, and moral. It then results in the experience that Dewey (1934/2005) described as the "interaction of organism and environment which, when it is carried to the full, is a transformation of interaction into participation and communication" (p. 22). This transformation highlights the presence of learning, "extracting at each present time the full meaning of each present experience" (Dewey, 1938a, p. 51). As Dewey (1916/2007) called "the value of that experience" (p. 61), the full engagement in the

moment when learning takes place is more urgent than the idea of learning to prepare for the future. While the ever-evolving development of ICTs may signify a need to catch up with new skills and practices, nevertheless the significance of learning itself in the age of digital culture responds to the wholeness of life. The connections between the presence of learning and ordinary life experience help to enrich the learner's capacity of meaning making. This enrichment is integrated, bringing along general literacy skills and participation in learning.

Technology as Means for Inquiry

Holistic teaching and learning respond to an inquiry-driven curriculum, and an artistic approach to the use of technology can facilitate this experience. Dewey's (1933,1938b) notion of inquiry suggested that learners search for resolution of a problem-driven situation through their actions. For Dewey, inquiry into authentic questions evoked from the learners' experiences situates that learner at the center, with both the initiative and the responsibility for learning. Today's multimodal digital environment signifies a form of communication that is configured and conveyed through visual imagery, sound, gesture, animation, and the written word. The lines between learning *about* technology and learning *through* technology are starting to merge, and learners can choose from a variety of digital media to expand a wide range of learning experiences. Learning is thus driven by the individual needs and interests of learners, and technology becomes not only a medium of representation, but also a vehicle that facilitates learners' exploration and reconstruction of their cultural and social experiences. In the context of holistic pedagogy, technology tends to become invisible as it is embedded in social practices. Therefore, we shift from a notion of employing technology as a tool to accomplish a task to view the task itself as the central focus, with the technology as substrate. We also highlight the

mediative function of technology, considering technology as a means for inquiry into the relations among ideas and thus experience a more connected way of learning.

Furthermore, like technology, art is embedded in the holistic practice of teaching and learning. While integrating art and technology, classroom activities all occur in some material or digital forms of media, which echoes Bolter and Grusin's (2000) argument that "new visual media achieve their cultural significance precisely by paying homage to, rivaling, and refashioning such earlier media as perspective painting, photography, film, and television" (back cover). Ultimately, we are not to differentiate between technology and art in relation to holistic teaching and learning, because the significant interrelation between the two can be realized in expanded ways with new meanings. For example, the study we presented shows that the three art teachers' allegiance to a studio-based art background and experience sustains their practices with digital media. Liz expressed a belief that students' decisions about their media choices develop from working with both conventional and digital media; Chris posited that learning foundational art knowledge is imperative to students' development of both aesthetic quality and craftsmanship in digital productions; Sara put forward the view that hands-on art experience contributes to student understanding of digitally visual representation. Importantly, holistic art education in the age of digital culture represents an interdependent partnership in which old media contribute to the enhancement of new media and new media reshape the meaning of old ones.

Learning Relationship as Groundwork for Cultivating a Unified Whole

Recognized by Dewey and other holistic education advocates, the learning environment and teacher-student relationship play crucial roles in the course of holistic experience (Black, 2009; Campbell, 2006; Delacruz, 2004; Nardi & O'Day, 1999). Dewey's (1938a) idea of *continuity* explains that the character of each new experience is shaped by those that come

before, suggesting the teacher's task of maintaining education continuity is to help learners reconstruct prior knowledge and present experience. In the age of digital culture, the role of the teacher has become more significant as teachers can offer strategies and practices to sustain this education continuity. In other words, to facilitate the totality of learning experience, teachers move beyond merely the delivery of subject content to help students make connections with their lived experience. As a result, the role of teacher is beyond simply delivering technological knowledge, but, as in Miller's (2006) profile of a holistic educator, is someone who possesses, "a receptive, compassionate awareness, an attitude of wonder, awe and reverence for life" (p. 8).

In the cases of three selected art teachers, we found the role of teacher has changed from that of instructor to that of facilitator in their holistic practices of linking art with technology, and importantly, a continually evolving teacher-student trust and mutual respect has emerged in each learning setting. Other studies which approached art and technology in a more holistic way also indicate the need of supportive environment and trusting relationship (Bruce & Reynolds, 2009; Casey, et al., 2009; Lin & Polaniecki, 2009; Winkler, Ide-Schoening, & Herczeg, 2007). For example, Bruce and Lin's (2009) study of making podcasts with Latino youth suggested the role of teacher has shifted from being the sole source of knowledge about content and media to sharing authority while integrating technology and art; Levy's (2007, 2008) studies of arts-based digital media education in a community sitting suggested a pedagogical style move from knowledge transmission to two-way collaborative knowledge construction between the teacher and the students. In short, the teachers' teaching strategies and characteristic styles in these studies manifested a shared learning environment where interaction was based on mutual rapport built over time, where individual differences were respected, and where collaboration was highlighted rather than competition.

Furthermore, a trusting teacher-student relationship can not only facilitate the quality of learning, but also provide an educational source for young people that mirrors how human relationships interact and develop. We observed that the students who took classes from the three teachers appeared to be more fulfilled through a sense of participation in a nurturing learning community in which content and context both contributed to learning as a whole. Taking into account again Dewey's notion of inquiry, a learning community in school is seen by extension as part of the situation we transform into a larger community of humanity. In line with this enlarged notion of community, a highly developed level of teacher-student trust and mutual respect is vital, as this experience of human interaction nurtures all participants of that community to become a unified whole.

Conclusion

In sum, we present practical cases and research examples of implementing art with technology in a more holistic way, as well as discuss the strengths of engaging a holistic and contextualized learning model in education. Experiences that make sense are those that individuals construct in relation to the world in which they live. Technology then can be seen as a medium that assists individuals to construct meaning for their lives through the process of learning. Although ever-evolving ICTs continually impact our lives, our pedagogical attention is not on how much we know about the technology itself, but, more importantly, on how we can use technology to better understand the world around us, relationships between self and others, and the continuity of lifelong inquiries. Thus, embracing holistic art education in contemporary society suggests an artistic engagement with and through an array of digital media as part of contemporary lived experience in an attempt to highlight learners' contextualized involvement with community and environment.

This study of the three art teachers' holistic engagements with art and technology indicates a holistic practice which moves away from the boundaries of subject areas, a collection of competencies, or situations that can be prescribed for another teacher or class; rather, it represents "a coevolution of individual, society, literacy, and technology, given coherence by the processes of construction" (Bruce, 2003, p. 337). Moreover, the three realms of learning— lived experience, inquiry, and learning relationships—are inextricably linked. Together, the three realms represent a possibility of how technology can be realized in a holistic way through individuals' endeavors for personal growth and community action. Art and technology in tandem are not simply a means to cultivate personal growth, but offer forms of reconstruction of the human experience, representing the connectedness between individuals and environments.

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