“If learning exists at multiple scales, from cellular to cultural, then so does teaching.”

Learning and Teaching Art Through Social Media

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Social media practices are increasingly woven into the everyday lives of teens and adults, becoming a significant part of how they relate, know, and learn. In this article, I present findings from a design-based research study that explored how the dynamics of learning and teaching art shift through social media. Learning and teaching through social media has been described as a form of participatory culture, and I expand this further by drawing upon complexity thinking to better understand the reciprocal dynamics of learning and teaching. Learning art through social media can be characterized as encounters with difference, both in ideas and contexts. Subsequently, the dynamics of attention shifts and distributes across collectives. From this, I infer a conceptualization of the art teacher as an identity that is not fixed but one that shifts throughout social media.

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Student participant, Gaelan Knoll, had never taken a photography course in high school. Through his participation in this online social media study, he was able to produce a portfolio of photographic works that articulated complex ideas through image and text. The difference between classroom-based learning and learning online, for Knoll, was that he attributed his learning to more frequent looking at and responding to his fellow participants’ images and ideas. In particular, he was able to build confidence and positive affect in his learning and artmaking by being able to engage with his classmates’ work differently. He was not alone in this regard. His fellow participants, both high school students and art teachers, described a shift in learning—one that is more socially influenced, asynchronous, dynamic, and reciprocal. Knoll’s statement illustrates how his learning, especially in art, is no longer limited to a classroom. This may apply also to what and who is considered a teacher beyond a limit of one individual. What Knoll’s remarks also point to more broadly is the increasingly social nature of learning through new technologies. These shifts raise new questions for how we can teach art in the 21st century, and this essay begins to offer insights into the question of how the dynamics of learning and teaching art changes.

Learning Through Social Media

Social media is defined in this study as digital technologies that enable social interaction through a variety of forms and channels. Interaction through social media can occur through a variety of ways, from Internet browsers to mobile phones (see boyd & Elison, 2007). Participation through and with social media is an opening for teens to socially relate with each other in new contexts not limited to school, home, or a fixed time. Participation with and through social media is not limited to building social relationships; it can also be driven by specific interests of users (Ito, Horst, Bittanti, boyd, Herr-Stephenson & Lange, 2008). This can include belonging to and participating in specialized groups that may include (but are not limited to) visual arts such as anime and comic art, video editing, photography, creative writing, fandom groups around reality television shows, and other creative activities (Jenkins, 2003, 2006; Jenkins, Clinton, Purushotma, Robison, & Weigel, 2007; Rheingold, 2007).

Participatory cultures have existed long before the Internet and social media (Jenkins, 2006). Yet, social media has amplified the ability for many different kinds of people to gather across time and space to share ideas. Understanding the reciprocal and dynamic systems of teaching and learning found in these types of social media environments requires
taking into account an individual's learning (Piaget & Inhelder, 2000) in relationship to the social influences of learning (Vygotsky & Cole, 1978). The social influences of learning art in classrooms is nothing new (Hagaman, 1990; Wilson, 2004; Wolf, 1993); however, what is new and needed is an understanding of learning that addresses the reciprocal dynamics of exchanges between individuals and social collectives through social media.

The field of art education offers a number of threads regarding digital media research and learning communities. Digital media can be used as a way of critically engaging with visual culture and building communities of resistance (Darts, 2004, 2007) in networked society (Sweeny, 2004). Learning communities have also been organized and supported through the creation of interactive social and ecological justice websites (Julian, 1996; Krug, 1997). Further, learning communities have explored how (AQ: the?) potential of hypertext, hyper-aesthetics, and critical pedagogy shape learning in ways that encourage critical thinking and the manipulation of ideas (Taylor, 2000, 2004; Taylor & Carpenter, 2002). Online learning also enables communities to assemble and take on new roles in environments like collaborative virtual museums (Keifer-Boyd, 1997) and has given new opportunities to connect for learners with disabilities (Derby, 2011). This study extends and elaborates Springgay’s (2005) theorization of learning through the digital as spaces that shape new processes of knowledge production that are networked and relational.

Complexity Thinking and Learning

At the beginning of the 21st century, art educators responded to the challenges of teaching and learning in a networked society (Castells, 1996). Brent Wilson (2003) drew from Deleuze and Guattari’s (1987) metaphor of a complex system—that of the rhizome—to describe the dynamic impact of the Internet and its possibilities for art education. The metaphor of the rhizome is used to visualize a complex dynamic structure that grows horizontally and in a decentralized fashion and is used to signify teaching, learning, and curriculum that can be unpredictable. Robert Sweeney (2008) further elaborated that complex systems are useful for rethinking learning and teaching through digital media as networked, decentralized, and emergent.

Systems understandings of nonlinear learning in the visual arts have challenged traditional notions of developmental endpoints (Kindler, 1999). What this type of research contributed has been a challenge to traditional ideas of hierarchal developmental stages; it has suggested that pictorial representation is more fluid as children are able to access multiple pictorial systems based on context. Broadening these understandings is the insight that systems are shaped by the educational, social, and cultural contexts in which learners are situated (Wilson, 2004).

Complexity thinking extends nonlinear systems understandings of learning art. In systems understandings of artistic learning, diagrams usually show a field in which the individual and social domain knowledge and context are of equal size and distribution (James, 1996). Complex dynamic systems are nested (Davis & Sumara, 2006). The concept of nested phenomena contrasts with understandings that treat social and individual phenomena at relatively the same scale (Mitchell, 2009). This is a transphenomenal understanding of learning—one that treats learning as being possible across scales of phenomena.

In complexity thinking learning, a process of adaptations and anticipations occurs nonlinearly through recursively elaborative processes of feedback loops. As individuals in the classroom learn, so does a knowledge system in the classroom that feeds back into the systems of individuals (Davis, Sumara, & Kieren, 1996). Or, in the case of social media, the dynamic system...
is one of relationships between individuals mediated by texts, images, and videos in a social network. A system of knowledge is a dynamic complex system of ideas that results from individual artistic inquiry. It is an inefficient, non-linear kind of causality (Juarrero, 1999). Rather than seeing learning as existing on one scale, theories of complex systems frame learning as dynamic and reciprocal, where individuals and social relations are continually adapting and co-specifying—in other words, each scale shapes the other dynamically (Davis & Sumara, 2006).

It is a process of emergence where knowledge is generated through the recurrent, continually elaborating interactions between individuals. The kinds of knowledge that emerge through these kinds of learning could never originate from any one individual, including the teacher. Emergence in this type of learning is only possible through social participation.

**Method**

Design-based research (DBR) is a way of designing, enacting, and researching educational innovations to effect local learning and to contribute to those theories of learning (Barab & Squire, 2004). As a methodology, it has become quite useful for art education researchers in studying learning online (Erickson, 2005). For the study presented here, DBR is important because, as a research methodology, it attempts to support theories of learning stemming from “active innovation and intervention in classrooms” (Kelly, 2003, p. 3). Kelly (2003) continued that the grammar of DBR is “generative and transformative. It is directed primarily at understanding learning and teaching processes when the researcher is active as an educator” (p. 3). Diana Joseph (2004) added that there are “three important, deeply intertwined goals for design-based research projects—research, design, and pedagogical practice” (p. 235). Researchers who employ a DBR methodology want to learn more about learning through specific design innovations in education.

The characteristics of DBR emphasized in this study are described as interventionist, theory-driven, pragmatic, contextual, iterative, collaborative, and integrative (Barab, Thomas, Dodge, Squire, & Newell, 2004; Design-based Research Collective, 2003; Collins, Joseph, & Bielaczyc, 2004; Edelson, 2002; Wang & Hannafin, 2005). As an interventionist process, it is a process of enacting theories of learning that are based on complex learning that attends explicitly to the dynamic reciprocal interactions between individuals and knowledge systems. As a theory-driven methodology, using DBR is a process of refining theoretical claims and insights through analysis and interpretation of the collected data. As a pragmatic methodology, it has valued useful contributions to theory and practice. The design of the curricula, pedagogies, or technological interface is woven into the contexts, or real-world settings, with the researcher as co-participant with teachers and student participants.

Complexity thinking and DBR share similar epistemological roots in that the observer, or the researcher, is complicit in what is being observed. Simply, our descriptions are a part of the world and they change the world while shaping our perceptions (Davis, 2004). Complexity thinking “compels researchers to consider how they are implicated in the phenomena that they study and, more broadly, to acknowledge that their descriptions of the world exist in complex (i.e., nested, co-implicated, ambiguously bounded, dynamic, etc.) relationship with the world” (Davis & Sumara, 2006, p. 15). Methodologies that apply descriptions, such as in DBR, fold in the messiness of context and a researcher’s interventions to complement complexity thinking (Phelps & Hase, 2002; Sumara & Davis, 1997).

**Description of Study**

This study examined how social media affected a curriculum and pedagogy in a social network space with the goal to better under-
stand how learning and teaching art shift in these environments. There were 15 student participants and 4 teacher participants. The students came from grades 9 through 12 and the teachers came from the art department. In consultation with the teacher participants, it was decided that this should be an extra-curricular project advertised through the art department to the entire school. There were three phases to this design; they occurred over a period of 10 weeks. Each week, as a researcher, educator, and co-participant, I adapted the curriculum and my pedagogy in response to the themes I interpreted in participant dialogues and images, and when possible, from formal and informal interviews. Even the weekly media clips from the film, *Euphoria*, were edited particularly for each week based on my analysis and interpretation of collective themes.

New Media & Social Networking in Art Education (NMSNAE) was the name of our online community. It was a password-protected, invitation-only, social networking site using the open-source Elgg (http://www.elgg.org/) platform. Social networks are a vital application in the broader social media ecology, boyd and Ellison (2007) defined social networking sites as websites that allow users to:

1. construct a public or semi-public profile within a bounded system;
2. articulate a list of other users with whom they share a connection; and
3. view and traverse their list of connections and those made by others within the system.

Our social network offered participants a place to post blogs, digital photographs, and videos; and to send messages, chat, and initiate discussions. NMSNAE was custom designed to resemble many of the social network interfaces that participants were familiar with, such as Facebook. This was to ensure that the online social network interface would feel familiar and be easy to use.

**Designed Curriculum**

There were two phases to the designed online curriculum; they occurred over a period of 10 weeks. Each weekly project was conceptualized as a *constraint that enabled* (Castro, 2007). Constraints are critical in shaping the qualities and characteristics of learning in a complex system (Capra, 2002). Constraints that enable paradoxically limit possibilities to create new possibilities (Juarero, 1999). In classrooms, there are those constraints that disable or enable. Disabling constraints go too far in prescribing outcomes, solutions, and ideas for artmaking. Both enabling and disabling constraints can be, but are not limited to, conditions like tables, chairs, class schedules, and curriculum. Constraints that enable provide enough structure to be recognizable and provide sufficient focus while also providing enough disorganization or chaos to provoke new possibilities within complex systems (Davis and Sumara, 2006). Carpenter and Taylor (2003) argued that learning through the Internet, specifically hypertext, is not just about making websites and interacting online; it is also about "the manipulation and exploration of ideas" (p. 52). Constraints that enable provoke meaningful engagement with ideas.

The first phase of the curriculum, comprising 4 weeks, was focused primarily on reshaping relations with ideas about happiness in our culture and personal lives. Two kinds of constraints were used as a beginning for inquiry. First were the weekly prompts presented to participants at the beginning of each week. Second was the use of the art/documentary film, *Euphoria*, (Booth, 2008) in weeks 1 through 4 as part of the weekly projects. *Euphoria* was used as a thematic catalyst to begin the curricular inquiry because adolescents engaged in new media practice produce works in response to other new media productions as a way of learning (Jenkins et al., 2007). The open-ended quality of richly conceptualized visual meta-
phors served as a constraint that coupled with the weekly prompt, enabling a space to inquire through art and ideas about self, happiness, culture, family, and social relationships.

The week 3 prompt was an example of how these constraints provoked new relationships to ideas. The question prompt asked: “Who around you engages with life meaningfully? Create a portrait (that doesn’t show them directly) that shows how they engage with life meaningfully.” For Gaelan Knoll, this week posed a challenge (see Figure 1). That challenge was in bringing a new interpretive possibility to his relationships with others by visualizing the objects, materials, and contexts that convey meaning. It was something that took time. In relationship to this and the other constraints Gaelan stated, “They’re fun, and have made me think really really hard. Whenever I see a new one I go “huh?” but I find that after a bit of walking around and thinking, the projects start making sense, and ideas start popping up... I got to think about what I think makes a meaningful life—I guess the project assigned coincided with a bunch of other events that were happening in my life—it just made me sit and ponder.

Through the context-sensitive constraint, his interpretive frame was reshaped and his relation to ideas shifted. Context-sensitive constraints are incomplete openings that prompt new relationships to ideas.

Figure 1. Student participant Gaelan Knoll’s photograph, Pastor. Gaelan’s description of the image stated, “Last Sunday he described how he would just sit down and talk to strangers—and this brings him happiness..... This is a room in our church where he teaches the younger generations about what he believes in.”
Although the week 1 project was pre-designed, the following weeks explicitly incorporated the knowledge produced from participants’ prior responses and dialogues into the next inquiry project. Complex systems are shaped by their history, meaning that instead of moving to themes and topics unrelated from prior knowledge produced, we referenced and responded to the ideas represented in the images, videos, and texts posted to our social network by participants. This was the iterative process this DBR enacted. A design analysis was used throughout to continually update the curriculum and social network.

The second phase shifted toward collective knowledge. The collective knowledge system was represented in the continually evolving and growing dialogues and images produced through artistic inquiry. Specifically, the curriculum and pedagogy asked for engagement and further artistic inquiry into the ideas represented in the images, videos, and textual dialogues on our social network. It was conceptualized as a group of artists who, through social media, shared local interpretations through art, interaction, and influence from each other’s local interpretations. This has been one of the salient features of social media’s ability to redefine curriculum to become more decentralized. For example, week 5 of the curriculum asked participants to create an artwork in response to another posted artwork in our social network. In week 6, participants were asked to post questions or prompts for the rest of us to respond to, and week 7 asked participants to curate a thematic album of artworks. The theme could be anything they wanted; the only constraint was it had to express their chosen theme. The aggregation of represented knowledge produced and represented in our collective images and texts gave rise to broader themes; these, in turn, shaped our local interpretations.

Results

The elements of a complex learning system are too numerous to count, and definitive list-making is sometimes problematic (Davis & Sumara, 2006); however, what Cilliers (1998) and others (Johnson, 2001; Mitchell, 2009) have done is to begin describing some of those critical characteristics of complex dynamic systems. I highlight the following characteristics to describe learning through social media as participating with and through a complex dynamic system. I focus on the act of looking and the act of dialogic interactions online; differences and histories of complex systems as represented in the ideas present in our social network; attention as shaped by decentralized network dynamics; and the spatial shifts of learning in an asynchronous network of ideas.

Learning Through Looking and Dialog

The quality and kinds of interactions in this study’s social network site were key to the emergence of a complex collective knowledge system. The curricular design for this study aimed to create both a space and a process where each individual’s local knowledge could interact, and where ideas could bounce up against one another (Davis & Sumara, 2006). The qualities of such interactions observed in this study are dynamic, rich, and nonlinear.

Learning occurs at multiple scales, from the individual to the collective, in complex systems. The individuals and the collective community of participants in this study acted as a learning system, adapting, shaping, and being shaped by each other. Dynamic interactions are described here as constant exchanges between participants. Meaning exists in relations and dialogues. This was enacted through individual messages, comments posted in response to images, blogs, and forum dialogues; all of these helped create a dynamic system of knowledge. As individuals, participants described what they learned: about themselves, their relationships, and the
Figure 2. Student participant Jean Valjean's photograph, Generations.

Figure 3. Student participant Haine Walker's photograph, Land of the Dandelion and Sunshine Yellow.
world around them; about inquiry through art; about how to use their digital cameras; and so on. The end of week 4 marked the point where, as a researcher, I became aware that participants were being influenced by the growing collective knowledge system. Student participant Jean ValJean's week 4 response, Generations (see Figure 2), is an example of how I was interpreting participants' looking at each other's images. What caught my attention was its resemblance to student participant Haine Walker's Land of the Dandelion and Sunshine Yellow posted earlier in the project (see Figure 3). I began to notice more and more of these kinds of influences as participants would directly attribute their inspiration while others were being more tacitly influenced.

As a result, phase two used constraints that were focused on attending to each other's images and ideas. In complexity thinking, this is a recursively elaborative process where the results of one activity become the source for the next activity. The first 4 weeks of inquiry generated a diversity of understandings and knowledge, and the conjecture in week 5 was designed to inquire if a collective of artists could become the source of their own curriculum. When participants were asked how they learned on the site, almost all described learning as something that took place through looking at and responding to images, videos, and texts online. Student participant Gaelan Knoll replied that he learned from others, stating: Well, it's like how I learn from lurking on deviantART I suppose. Seeing other people's works, I find myself analyzing what works and what doesn't.

Participants acted as producers and consumers of their own and each other's ideas as represented in the texts and images posted. Student participant Sophie Lee remarked that this was an opportunity to incorporate her peers' ideas into her own artworks. This constraint was permission to explicitly incorporate her own ideas with ideas she admired. She elaborated:

I really like how we can incorporate our own ideas with other people's artwork. I think that is really awesome. Sometimes it makes me sad that others have thought of such great ideas I couldn't think of and this project gives me the chance to use my own style and remake an artwork of the similar idea.

Rather than discouraging participants from copying others' work, the constraint served as an acknowledgment that in art we can learn from looking at each other's work, by playing and elaborating with each other's ideas. Using each other's ideas as points of departure and elaboration is an important social media practice in learning. These kinds of relationships can be thought of as rich interactions and are understood here as a diversity of ways to respond and relate.

The ability to view comments and dialogues posted by other participants about others' artworks was significant. Gaelan Knoll described how he learned from reading other participant's responses. He stated his learning came from getting "feedback from other people's feedback." This differs from feedback in traditional sites of learning because the feedback is asynchronous and accessible outside of the time and space of class time. Feedback also becomes persistent as it accumulates over time with an associated image. In complexity theory, this is described as nonlinear interactions that are understood here as asymmetrical. This means that flows of interactions are multidirectional. In contrast to linear interactions, which flow in one direction, nonlinear interactions—although intended for one participant—can affect another.

This kind of learning translated into more complex and iterative interactions with ideas. For example, student participant Mango Jello's final project explored a series of images through the visual and political issues of water. Her image of a water faucet (see Figure 4) was in response to student participant Opti's week 6 prompt
Figure 4. Student participant Mango Jello's response to student participant Opti's week 6 prompt. Mango described the image as, "something that is important, but is always taken for granted—running water [Opti's Project]."
that asked: "What do we take for granted in first world countries?" This image evolved into an inquiry that visually explored the emerging tensions embodied in water issues (see Figure 5). Social media's ability to provide anywhere and anytime access to her peer's ideas enabled Mango Jello to recursively elaborate her artistic inquiry through and with the collective.

**Learning through Encounters with Difference**

Curiously, emergent knowledge in a collective tends to occur when individuals are deeply committed to their own local knowledge (Surowiecki, 2004). This means that the art curriculum was not a group project like a mural designed and painted through consensus. It was a curriculum that asked for the kind of personal knowledge that only an individual could provide. The aim in the curricular design for this study was to create both a space and a process where each individual's local knowledge could interact.

When asked "How did they learn?", most of the participants suggested they learned from comparing images—those they liked and those they did not—as a way to see the differences. Some participants said they learned not from one particular image, but from the act of looking at the entire collection of images over and over.
again. Others remarked that the comments they received about their images were important for their learning, while others described learning from reading the comments on others’ images. Student participant Haine Walker, in two separate interviews, stated:

I am seeing different types of photography styles and they look pretty interesting. And I got more inspired to do macro shots when I saw other people's macros. I can't remember who it was, it may have been Milo Fishie or something...after seeing all of those macros, I am more inspired to do macros shots.

It was the act of encountering different interpretive possibilities that Haine Walker considered significant to his learning. Student participant Opti was able to describe, as a beginner, that photographs do not need to be “perfect.” Through viewing different representational strategies of ideas, he was able to see the differences in how people approached artistic inquiry through photography. In addition to being able to see a wide variety of approaches to imagemaking and thinking, Opti stated how he felt better at giving more articulate and descriptive feedback to others:

I’ve learned that it doesn’t have to be, like, sharp and like precise. It could be, like, blurry and have movement... I learned that photos don’t have to be, like, one thing. Like art, it’s not just one thing, it’s how you interpret it that’s important.

Stormy, one of the participating art teachers, described encounters with different ideas as part of her learning process. For her, these were moments that acted as a kind of disjunctive wherein her attention was drawn to artworks that fell outside of her interpretive frame. This attention to difference led to an inquiry that reshaped what Stormy thought was possible and prompted further inquiry. She stated:

I was learning by looking, seeing what other people were doing, trying to figure out why they were doing it. I suppose that's what it comes down to. Just that whole thought process, “Oh that's interesting. What was that all about?”

Difference is not only about having a diversity of artworks, chosen and disseminated by participants represented in a mediated place, but also about the relation to those differences, which are dynamically shaped by the activity of many individuals posting, commenting, and viewing. Encountering difference through social media occurs across many different contexts. Social media, like other media transmissions, creates event potentials in which mediated representations are transmitted into new and open contexts (Massumi, 2002). The experiences of logging onto our social network in a bedroom, at school, or on a mobile phone, all are new encounters that are unexpected and that cannot be planned by any one individual. Difference is experienced in social media through the dissemination of representations of knowing, chosen by individuals and the encounters with a collective’s knowledge system in unexpected contexts (Ellsworth, 2005). The activity on the social network continually changes the form of the collective knowledge system through the addition or subtraction of images, texts, and views. These dynamics keep potentiality and difference in continual motion.

Dynamics of Attention and Learning Through Social Media

Students learn from each other by looking at each other’s art in the art classroom (Hagaman, 1990; Kakas, 1991; Wilson, 1976, 2004). But how do we know who is looking at whom? What happens in learning through looking when it is online and the spatial relations have shifted? Who gets the attention? These kinds of attentions and influences resemble the dynamics of a decentralized network. Interaction and learning through social media “make visible what was before only present virtually” (Latour, 2005, p. 207).
The act of looking is not passive on social networks. On our social network used for this study, views were tracked with images and activity. The more views an image received, the more it would come up under search filters such as “Most Popular Photos.” When an image received a comment, it would show up in the “Recent Activity” section of the main page. The awareness within the collective was raised by individual activity—viewing and commenting on images. Through the actions of many individuals clicking, scrolling, looking, and commenting, we taught the collective knowing system through our social network. The medium was impressed and shaped by our activity, not only when that involved posting images and comments, but also when it was limited to the simple act of viewing. Another difference is found in the dynamics of relations between individuals and a system of knowledge. The space, place, and time of learning are reshaped through these new qualities of relations. Specifically, they follow a certain dynamic found in decentralized networks that are the underlying structure of complex dynamic systems (Cilliers, 1998).

Our idea of the Internet as a totally egalitarian place, where attention is distributed evenly and equally, is far from the dynamics observed online. Barabási and Albert (1999) found the Internet to be a decentralized, scale-free network that grows in a rich-get-richer fashion. This means that nodes (websites) with more links get more links in proportion to their already established ones. It is a dynamic of preferential attachment wherein ideas or people receive proportionally more associations and attention based on the associations and attention they already have (Watts, 2003). This dynamic is not driven by computer algorithm alone; it is also driven by human action. As the architecture of complex systems, decentralized networks are dynamic structures that are constantly adding and pruning new links, nodes, and hubs.

Opti’s images and ideas acted as a hub of attention, even though he was not a prolific contributor, nor had he taken the photography and art courses many of the other participants had. When participants in week 5 were asked to select an image to use as a point of departure for artmaking, most participants responded to Opti’s images. He received three responses to six of his images, out of a possible 293. One was from someone who knew his physical identity, and two were from participants who did not. In the week 6 constraint, most participants selected Opti’s question of inquiry for their response. For whatever reason, Opti’s ideas were a significant hub in terms of the attention and associations they received in weeks 5 and 6 of the curriculum. Here, the metaphor of hubs draws from understandings of decentralized, scale-free networks. In decentralized networks, hubs gain links and associations in proportionately greater numbers than do other nodes in the network (Barabási, 2003).

In complex dynamic systems, causality is not a unidirectional arrow, and the overlapping and dynamic architecture of these systems supports and unfolds in similar ways. Clay Shirky (2008) wrote about how the proliferation of any communicative collective spaces, such as weblogs (blogs) in the early 2000s, were widely perceived as “democratic” and equal spaces where anyone’s voice could be heard by anyone else. While this was true in principle, in the sense that anyone could set up a blog and that anyone with an Internet connection and the blog’s address could read it, it was not how the Web actually evolved. Instead, the Web is really distributed as unequally as are most distributions of unregulated, dynamic, scale-free networks.

We know peers learn from each other in art classrooms, and what this metaphor suggests is that peer learning of art online is characterized by certain complex dynamics—where attention begets attention through dynamic associations.
that are reinforced and amplified by the coded algorithms in many forms of social media.

**Shifting the Spatial**

Inquiring through art in an online community shifts the spatial relations between individuals and representations of knowing. This was perceived and described by participants as a quality in learning art through our social network. Student participant Gaelan Knoll described how being able to see what other people are doing, on his own time and in his own space, was a significant advantage to learning through social media.

In the opening quote of this paper, Gaelan described a comfort in being able to closely examine his peers' work without having to be physically close. If he wanted, he could look at an image far longer than if he were standing in front of it with the artist next to him. Student Mango Jello also elaborated that, for her, the ability to engage with her peers' art by viewing their images online was different than viewing works on the art classroom walls. She stated that,

Sometimes with your art class you don't get to see other people's work, sometimes it is up on the walls but you don't really... I don't know, like here [our social network] is a place where you can share it and everyone can leave comments and stuff. If it's hanging on the wall you can't quite leave comments. Especially if you don't know the person.

Participants like Mango Jello and Gaelan Knoll described a difference in the ability to engage and dialogue through social media. Of course, one could always leave comments in an art classroom. However, as Ellsworth (2005) and Massumi (2002) described, social media's ability to create encounters in open contexts as chosen by the participants represents a difference in posting and receiving comments about art. Comments on a social network are archived and dynamic. When comments were posted on our network, the system offered notifications to everyone who had commented on the same page, including the artist. On the Recent Activity section of the Main Page, the most recent comments posted were listed. Comments were also dynamic through time; dialogues could be revisited as they evolved well after the initial comments had been posted.

**Discussion**

The primary effect of creative interaction within such networks is to render obsolete the distinctions in absolute terms between the artist and viewer as producer and consumer, respectively. The new composite role becomes that simply of participant in a system creating meaning seen as art. (Ascott, 2003, p. 215)

The insights into learning presented infer that teaching art through social media is not necessarily rooted in the identity of any one individual. Just as Ascott called for the identities and roles of artists and viewers to be reconsidered through new media, so should the identities of art teacher and art student be reconsidered through social media. Following Roy Ascott’s (2003) line of thought, we should view the teacher and student as not residing in any one individual, but as participants in a dynamic and collective system of meaning. This echoes Graeme Sullivan’s (1993) conceptualization of art education, wherein “teachers and students become co-participants in learning, and content is approached and acted upon in different ways and from various viewpoints” (p. 8). It is not as if this cannot happen without social media; rather, these roles and identities are dynamically and continually being reshaped through the teaching and learning of art through social media.

Further, the definition of teacher as a singular individual needs to be expanded to include images, objects, events, encounters, and so on. If learning exists at multiple scales, from cellular to cultural, then so does teaching. As has already been represented, participants learned through relating to a dynamic collective knowledge.
system of mediated representations of images and texts in open contexts. Of course, I acted as a core influence by proposing constraints, commenting, and designing the curriculum. However, I cannot fully account as the causal source for the kinds of learning presented. No one “thing” can; rather, it was a dynamic, interdependent system of relations between participants through social media. Cilliers (1998) stressed this last point by stating that individual elements “cannot contain the complexity of the whole system and can therefore neither control nor comprehend it fully” (p. 122). This characteristic informs an attitude that should be taken in the pedagogy enacted through social media—of not wanting to control individuals or the collective, but wanting to participate as a part of the collective.

Teaching art through social media does not mean that the responsibility of what we have come to know as an art-teacher identity is dissolved. What shifts is how the responsibility is distributed throughout the collective. As a complex dynamic system of artistic inquirers develops, a history and pattern of interaction is shaping and supporting future inquiry. A system of relations through social media can support inquiry and distribute the responsibility of an art teacher. In the 21st century, we must take into account that the collective also teaches.

REFERENCES


ENDNOTES

1 The IRB protocol for this study required that all participants self-selected a pseudonym to protect their offline identity as they participated in this research study. Their self-selected pseudonyms were also their online identities in our password protected social network site.

2 The term collective is defined in this study as a group of individuals, ideas, and activities gathered around a shared yet diverse set of purposes. In the case of this study, a group of students and teachers making art together in a social network.

3 Complexity thinking "compels researchers to consider how they are implicated in the phenomena that they study and, more broadly, to acknowledge that their descriptions of the world exist in complex (i.e., nested, co-implicated, ambiguously bounded, dynamic, etc.) relationship with the world" (Davis & Sumara, 2006, p. 15). Complexity thinking's "principal orienting question is neither the fact seeking 'What is?' nor the interpretation-seeking 'What might be?'; but the practice-oriented 'How should we act?'" (Davis & Sumara, 2006, p. 25).

4 Emergence in complexity is defined as a new set of possible actions, abilities, knowledge, etc. that arises out of the interaction between individuals (Johnson, 2001).

5 Euphoria is an art/documentary film designed to stimulate discussion and reflection around trans-disciplinary themes, which include neuroscience, social anthropology, psychology, and history. The film's trailer and website can be accessed at: http://theeuphiaproject.com/

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