Blockchain Technologies In Community-based Arts and Visual Arts Education:

Implications for Fair Use and Changing Practices

*Working paper*

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Abstract

The digital art landscape has rapidly expanded since the passing of Visual Rights Act of 1990 (Baron, 1996; CAA, 2013). With the recent advent of blockchain technologies, derived from Nakamoto’s Bitcoin currency, new possibilities have emerged for the way artistic materials can be exchanged and how communications can be conducted. This research examines emerging applications for decentralized blockchain technologies in community-based art projects and digital art startups. The work of three organizations, ConsenSys, Ethereum, and Monegraph, is explored. Through the use of blockchain technologies, digital artists can create a traceable and tradable record of their work, while generating a critical discourse around the reproducibility of media. In this research, I investigate the potential uses of digital art in the blockchain and its educational value in visual arts education.

*Keywords:* art education, blockchain, design, digital art, identity, ownership, provenance
Introduction

Recently, there has been a rise of blockchain startups that are not finance-focused, such as ConsenSys, Ethereum, and Monegraph. The work being done by these organizations has the potential to change the way artists and designers define, control, and license their work. Today, it is a problem that artists and designers\(^1\) create work, post it to the Internet and various social media and networking platforms, and essentially *give it away* (McConaghy & Holtzman, 2015); only for companies and other platforms to monetize these works. These platforms that host the artworks are often the ones that are able to capture the revenue from advertising and selling data. By utilizing blockchain technologies—which is basically a public ledger hosted on a number of computers in a network (See Figure 1)—ConsenSys, Ethereum, and Monegraph are developing a new methodology for social networking and monetization in the digital arts and community-based art projects.

Works of art that are licensed, exchanged, and sold through the blockchain are committed to public record (Constine, 2014). This has the potential to create provenance and generate a new type of digital art historical record, which could serve as an alternative type of Internet archive. The transactions are made are secure through encryption. These transactions, facilitated by the artists, designers, or artwork owners, are intended to eliminate intermediaries. Through disintermediation, art buyers can purchase works through the blockchain, while maintaining anonymity, and vice-versa. Thus, as a business model, digital arts integrated with use of the blockchain, have various prospects, and as a tool, the blockchain has many archival capabilities.

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1. The term “digital artist” is broadly defined in this research. This definition includes designers, photographers, 2D & 3D artists, as well as any creative practitioner incorporating creative technologies in a significant portion of their artwork.
2. See the article “Public Randomness in Cryptography” (Herzberg & Luby, 2001).
In addition to the broader monetary and documentation-based uses, there is a wide range of open-source, community-based art applications for digital art and the blockchain. This is discussed through the lens of the organizations in this research. Social and educational uses have the potential to generate a critical discourse around the reproducibility of media, while
encouraging creative communities to embrace new tools that reframe or enhance the definition of art, and the value art in the digital realm.

Methodology

Research Questions

There is a lot of debate about the question of how to define art and determine its value (See Danto, 1986; Dickie, 1969; Weitz, 1956). Dickie (1969) posed the question, “Just how is the status of candidate for [art] appreciation conferred?” (p. 785). In contemplation of the question of value, Dickie (1969) noted that it is the audience that deems art as an artifact and “worthy of appreciation”. Danto (1986) observed that this status is awarded by “art schools, museums, institutions” and what the art world can get away with (p. 786). With the coming of digital technologies, it can be argued that nowadays, the audience that an artist can reach is more accessible and more varied. Today, audiences can be reached through social networks, blogs, video chat, viral media, and the settings are conceivably more pluralistic.

Long before social media, Danto contended that a sea change would occur in the visual arts, thanks to this rise of pluralism. Danto (1986) made observations alluding to disintermediation by acknowledging, “The institutions of the art world—galleries, collectors, exhibitions, journalism—which are predicated upon history and hence marking what is new, will bit by bit wither away” (p. 798). While Danto’s view may be perceived as unconventional or grandiose, his ideas fundamentally explore an important theme of democratization and diversification in the art world.
The theme of democratization is in the early days of being addressed by recent adopters of blockchain technologies. The collective sharing of art through the blockchain, in some respects, expands upon the persistent, age-old question: *What is the definition and value of art?* These concepts also pose essential questions about how an artist can make a living wage, and acquire more control over their assets (Hyde, 1983). In light of research by Danto, Dickie, and Weitz—and more recently, organizations working with digital art and blockchain technologies—these concepts help to frame the following research questions:

**Can the blockchain change the way digital artists and designers view and negotiate the ownership and definition of art in a digital age?**

–Are we educating digital artists and designers about new technologies, such as the blockchain, that allow them to manage their work?

–Will blockchain technologies work, and do artists and designers understand them?

–Specifically, what are the social implications of blockchain technologies in community-based art projects? What are the advantages? What are the challenges?

**Design of Study & Study Participants**

This research is an interview-based pilot study, combined with a qualitative review of extant literature (See Glaser & Strauss, 1965; Merriam 1998). In this study, I interviewed Ashley Taylor (Social Innovation Director, ConsenSys) and Kevin McCoy (Founder of Monegraph). Taylor and I engaged in a preliminary discussion about this research on September 12th, 2015 to identify the potential benefits and challenges with regard to blockchain technologies and the visual arts. Following this meeting, I was invited to join ConsenSys’ Slack messaging group. The
group consists of nearly two hundred members worldwide. Through partial participant observation, I was able to review ongoing discussions and project developments, which helped to establish an interest to definitively move forward with this research.

Interviews with Taylor and McCoy were conducted in October of 2015. I interviewed McCoy on October 7th, 2015, a week after the launch of Monegraph. I interviewed Taylor on October 16th, 2015. Using a constant comparative method, which draws from grounded theory, I present the research findings in the “Results” section.

**Literature Review**

In a digital culture of sharing, the exchange of art and media can support practices of community organization and building, research about visual arts, and emphasizes meaningful contemporary issues about how digital art is handled (Shirky, 2008; Stankiewicz, 2004; Sweeny, 2010). It this digital culture of sharing, data privacy and ownership is a paramount concern, especially with regards to visual arts (Reutter, 2004). In the field of digital art and design, the boundaries of ownership are often blurred by intermediaries and unauthorized users. Over time, a legacy system of intermediaries has become so tightly unified with creative industries that it is, at times, difficult to unravel (Allison, 2015).

The Visual Artists Rights Act of 1990 (VARA) aimed to combat this by establishing “moral rights of attribution and integrity” in the United States (US) and granting some rights to artists. However, VARA has been criticized for its ambiguity about how the digital arts are recognized, licensed, and distributed. Digital arts do not fit comfortably within the VARA protocol (Reutter, 2006). Given that ownership in the arts is a strongly debated subject matter, which has long troubled visual artists and art educators as they navigate issues of fair use and
copyright law, the field of digital arts and related fields, there is a need for new solutions, improved advocacy, and more transparency (Duncan, 2013; Lessig, 2008).

The blockchain, which is the “first […] universal database that records transactions and grows linearly in chunks”, promises a possible solution to artists who are navigating these issues (Peck, 2015). These new and decentralized technologies challenge the digital art ownership paradigm and have the potential to reconfigure the lack of “true agency” online. By routing artwork, such as computer-generated media and digital photography, through the public ledger built on blockchain technology, artists and designers have access to more transparency in data authentication and enhanced control over what happens to their creations.

Figure 2. *Monegraph interface & control panel*

Public interest in the blockchain has been gradual. This can partially be attributed to lack of educational resources about blockchain technologies and misconceptions attached to Bitcoin. Bitcoin is stigmatized due to its association with black market activities, theft, and “collapsed
exchanges” (Bonneau et al, 2015, p. 105). However, despite the challenges, Bonneau et al (2015) argue that Bitcoin’s “core consensus protocol” has many uses: secure time stamping; self-enforcing “smart contracts”; distributed naming; and public randomness \(^2\) (Bonneau et al, 2015, p. 103). And, in theory, this protocol is democratized.

So far, many of the projects initiated by ConsenSys, Ethereum, and Monegraph have been experimental. These projects have also been highly lauded by technology and finance sectors.\(^3\) Over time, the blockchain’s creative and educational potential has become more and more apparent. In the next two sections, I briefly describe the work being done by these organizations to advocate for these emerging applications.

**Results**

This section is organized into five subsections. In the first and second, I provide background information about the work of Monegraph, Ethereum, and ConsenSys. In the remaining subsections, I will present research themes and interview data. The themes and data correspond with the research questions.

**Monegraph**

In October of 2015, Kevin McCoy launched Monegraph (www.monegraph.com), an experimental digital platform that enables creative practitioners to create licenses for their work. This project was launched in collaboration with his cofounders, technologist Chris Tse and

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\(^2\) See the article “Public Randomness in Cryptography” (Herzberg & Luby, 2001).

\(^3\) A succession of large organizations has begun to make plans to use blockchain technologies. After a year of consultation, a consortium of banks, including Barclays and JP Morgan, has announced their plans to use blockchain technologies to develop their own public ledger system (Kelly, 2015).
entrepreneur Anil Dash, receiving additional support from the New Museum’s start-up incubator, NEW Inc. (NEW Inc., 2015).

As an Associate Professor of Art and Art Education at NYU Steinhardt, now in his twentieth year as an educator, McCoy has worked with thousands of students in the arts, contributing to their professional development in a wide range of creative fields in digital art, photography, design, and more. He observes that working with these students has essentially served as a litmus test for the creation of Monegraph.

McCoy had been contemplating blockchain technology and digital media for a number of years. He knew about Bitcoin early on, following developments on Slashdot, and in 2012, he embarked on researching the blockchain ecosystem. By 2014, he began building a proof of concept for a “user-first” digital art attribution software. His conceptual framework evolved to become a broader social platform, making artistic licensing central to his platform. Licensing practices through Monegraph are flexible and artists can “create and customize a … contract that establishes the usage parameters for [the] media” (Monegraph, 2015). McCoy (2015) explains, “A professional gets paid for what they do. Everybody wants credit for what they do, and that’s critically important. And we’re trying to facilitate usage…” (personal communication, October 7th, 2015).

Monegraph (2015) currently supports the following four licenses:

- An **Artwork** license is for non-commercial use and personal enjoyment (Monegraph, 2015).
- A **News Photo** license is for editorial, not commercial use (Monegraph, 2015).
• A **Product Image** license is a more typical commercial rights-managed (RM) license (Monegraph, 2015).

• A **Snapshot** license is a commercial agreement that gives virtually all rights over to the buyer (Monegraph, 2015).

In light of the Monegraph’s recent launch, McCoy and his colleagues are faced with a unique set of challenges. The Monegraph team is in the midst of conducting outreach to help their audience understand their platform. They also continue to build additional functionality for their platform to include a broader range of art and media types, along with more available social networking properties that will foster dialogue and community development.

**Ethereum & ConsenSys**

In this section, I will briefly introduce the work of Ethereum and ConsenSys. Ethereum’s decentralized applications platform was first conceived by its founder, Vitalik Buterin, in 2013. It was later announced by Gavin Wood in his 2014 yellow paper, “Ethereum: A Secure Decentralized Generalized Transaction Ledger”. In August 2014, following the yellow paper and promotion of the project, a crowdfunding campaign was designed to financially support it and help launch the technical development of the project (Ethereum, 2015). Once built, the platform (https://www.ethereum.org) was posted for public use. The platform requires basic programming knowledge for installation, along with a basic understanding of the cryptocurrency “Ether”, which runs the network. After installation, an “autonomous network” can be launched without the “possibility of downtime, censorship, fraud or third party interference” (Ethereum, 2015).
Out of the Ethereum platform and network of designers and developers, the studio, ConsenSys, was formed. ConsenSys is one of the few studios devoted to developing concepts and products, built entirely on the Ethereum platform (See “State of the DApps” at http://dapps.ethercasts.com/). Joseph Lubin, the founder of ConsenSys and a former member of the Ethereum project, built his Brooklyn-based production studio with the aim of experimenting with these technologies (See Figure 3). Lubin’s aim is to model creative applications that take socially conscious stance coming out from the Ethereum ethos. Recently, Ethereum held an Ethereum- and blockchain-focused 5-day conference called “Devcon 1” in London, UK in November 2015. Lubin was one of the conference sponsors. At “Devcon 1”, Lubin explained “the need for humanity to take more ownership of the world… in order to solve societal and environmental problems”, arguing that a mesh structure of businesses and organizations, facilitated by decentralized technologies, can help achieve that (Ammers, 2015).
In the early days of ConsenSys’ formation, Lubin identified community outreach as a key challenge, and hired Ashley Taylor. Taylor was hired to oversee the social innovation component of the ConsenSys studio and work agilely in a large and decentralized network of creative technologists. The group has a leadership team of around ten members, with a larger network consisting of hundreds of collaborators who work remotely from around the world. Taylor’s recent work includes the design advocacy events, workshops, and competitions—including a hackathon called “Blockapps” (Hertig, 2015), hosted in October 2015. Blockapps” was developed to creatively envision the blockchain. Taylor (2015) observed about her responsibilities at the studio, “Sometimes I’m helping to spearhead planning events and those events would be a pitch demo with other groups in the space. And there was this event with the New York Internet Society where we invited people into our office to talk about how you can use the blockchain for governments and transparency” (personal communication, October 16th, 2015).
In addition to “Blockapps”, Taylor is in the process of collaborating with several other community arts and civic-engagement-focused blockchain applications, including Ujo Music. Ujo is a music sharing and licensing application founded by Phil Barry, and it “released a live prototype which uses Imogen Heap’s new song, “Tiny Human”, as a test case in October, 2015 (Ujo Music, 2015). Heap worked in collaboration with an Ethereum engineer, Vinay Gupta, to release her new song independently on the blockchain. Heap (2015) describes the community-centric collaboration, “There is plenty of money being made out of the music that we make, but it isn’t getting back to us. It’s about creating a fair trade industry for music, an ecosystem that makes sense. If people knew a radio station, a platform or a device was using a fair system, and that artists were being recompensed for their work directly, they’d go for it over another that didn’t” (Bartlett, 2015).
Figure 5. *Imogen Heap on Ujo Music.*


**Ownership and Definition of Art in a Digital Age**

Personal data proliferates digital spaces at an increasing rate. Sometimes, this data is archived in a linear fashion, and at other times, it is amorphous, which makes it difficult to figure out who the original owner of a digital artifact is. McCoy views the blockchain as an element of a larger ideology to nurture a dialogue about ownership in the arts, which may help to map the digital domain ecosystem and give attribution systematically. Taylor (2015) also shared this perspective, stating, “that’s the whole point of this paradigm … it’s that your data can follow you into whatever context and you’ll be able to see how that changes” (personal communication, October 16th, 2015).
As regards the exchange of digital art artifacts, McCoy (2015) notes, “Finding an agreement around usage and value is a much more constructive way for our digital practitioners to be operating on. What’s the value of what I'm doing, and what is its utility?” (personal communication, October 7th, 2015).

**Self-Agency in the Digital Arts**

The topic of self-agency and empowerment for visual artists emerged as a strong research theme during the interviews. Both McCoy and Taylor want to support emerging and established digital artists, as well as practitioners across disciplines that work with the arts. Taylor (2015) observed, “At the end of the day, I want people to be empowered to pursue a life that has meaning and to participate in a system that they actually have a fair opportunity to find that meaning. With that in mind, the technology itself does not solve it. It's the use of the technology, the implementation, and the systems of people around them” (personal communication, October 16th, 2015).

The need for more self-agency is familiar dilemma for many digital artists. On the topic of self-agency and usability, McCoy (2015) explained, “This is about people that are interested in trying a new approach. More self-directed, more self- managed, probably people that are active on social media and follow the social media model” (personal communication, October 7th, 2015).

**Social Implications of Blockchain Technologies in Community-Based Art Projects**

From ConsenSys hackathons to the availability of Ethereum’s open-source framework and the creation of the MoneGraph app, these recent creations with blockchain technologies are
aimed at supporting community-based art projects. With some basic training, McCoy and Taylor propose that any artist can participate in these projects. Our dialogue about self-agency also spurred a conversation about the social implications of what it means for an artist to assert their reputation, and what it means to be in control of this. Taylor (2015) pointed out, “I think ConsenSys will make it so that people realize by participating community-based art projects that use the blockchain, I'm in charge of my relationships with this, and I'm in charge of my community” (personal communication, October 16th, 2015).

This future of working blockchain is, perhaps, not so far away, but it is still unknown to the majority of digital artists. It is implied that embracing these technologies could have a range of social and socioeconomic implications, such as saving time, saving money, providing a larger social network to be a part of, and, as mentioned, providing an increase in agency. Yet, several key challenges, often outreach-related, still stand in the way. McCoy (2015) concluded, “There is a lot of outreach to do and I believe we're thinking about it, right now, as a political campaign, like a political party’s setup where we go door to door, on the ground, as part of the campaigning process … I have to keep reminding myself and people don't really know about and understand it but just an idea of scarcity” (personal communication, October 7th, 2015). Taylor (2015) is presented with similar challenges, recognizing that, “Part of developing the community aspect [is] being an advocate. A lot of times, I'm doing a little bit of networking … presenting the ideas, writing blog posts about it … giving them an identity and a reputation, and using that to help people understand what I think is the future of social networks” (October 16th, 2015).
Research Limitations

This pilot study was constrained by a time period of 3 months. While there was enough time to schedule several in-depth interviews, the interview data was collected from a small study sample. The information presented in this research is based on preliminary results.

Further Research

This research was a pilot study. I would like to further develop this study by following upcoming developments that are connected with these organizations and their use of digital arts with the blockchain. These emerging technologies represent an important development in art and design, and its potential to change the means of disseminating and monetizing art, at large. Positive preliminary results were demonstrated through McCoy and Taylors’ practical methodologies, data collection, and community outreach practices.

Implications and Challenges for Digital Art and the Blockchain in Art Education

Blockchain technologies in the visual arts and design help to frame contemporary issues about community-based learning and technology integration in education. As new creative technologies such as the blockchain emerge, how can educators integrate these new methodological tools into practical applications in community-based art projects, formal and informal learning environments, and the art and design education curriculum? Integrating new technologies in the arts, as well as across many disciplines, is a fundamental organizational and educational challenge.
The promise of blockchain technologies in the visual arts is still, for the most part, unrealized by the public and most organizations. There is still a lot of skepticism for those who have recognized its value, including digital art collectors (Doms, 2015). In discussions with McCoy and Taylor, they both agreed that there is a need for more dialogue and dedicated outreach to help bring this framework to a wider audience and educate the agnostic.

Dialogue on this subject matter presents opportunities for creative practitioners to evaluate the exchange of values, not just the exchange of the media itself (McCoy, personal communication, October 7th, 2015). In user-testing scenarios in the education environment, visual arts projects that are enhanced by blockchain technologies open new venues for self-directed, self-managed processes, which could make a valuable addition to the field of art and design.

In conclusion, this research explored how a critical discourse around digital art, design, and the blockchain can be helpful in developing a fresh dialogue in a digital age, where ownership in the arts is a controversial topic.
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