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Internet Art: An Interactive Timeline Resource

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Internet Art: An Interactive Timeline Resource

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Abstract

The purpose of this study was to first collect and summarize the history of internet art from its inception to current day and, second, to create an interactive timeline resource (ITR) designed for K-12 art application. Current approaches to internet art include recommendations that students engage with social media in the K-12 setting, yet gaps in the literature have neglected to address the actual history of internet art as a feature of a student's K-12 art experiences. Initial research started from a preliminary hypothesis that highlighted the irony of students using the internet in art class and daily life, yet receiving little to no teaching on the history of the internet and related art. The related research questions aimed to present a chronology of internet art and to produce an ITR for curricular implementation through three research questions. First, what is the history of internet art and what key figures, communities, and subcultures exemplify the phenomenon? Second, how are contemporary online artist's behaviors in communicating, collaborating, and discussing art influenced by previous iterations of internet art? Third, in what ways can internet art and its history inform K-12 art education theory and practice? The study was conducted following grounded theory, showcased in the generation of a literature review punctuated by reflections on the initial hypothesis, and borrowing from historical analysis, demonstrated in the construction of a chronology on internet art. The main conclusions of this study found that not only were there gaps in art education literature regarding internet art in K-12 art teaching, but these gaps have been previously highlighted by art education researchers who have called for its inclusion in K-12 art education curriculum.

Chapter 1

From childhood to present day, online art communities have shaped my artistic development. I have learned about the digital world vis á vis my direct involvement within it - from the early days of playing CD-ROM learning games to my most recent endeavors into 3D modeling and digital illustration. I have intentionally engaged in a variety of online communities, specifically art communities on Tumblr and Twitter, that supported the exploration of comic, manga, and cartoon media. Through these communities, I learned about my interests as an artist despite lacking the knowledge needed to fully understand the extent to which technology was advancing. For every game, TV show, or movie that I enjoyed, I came across online communities that were producing and sharing a variety of fan-based art. People who enjoyed the same shows, films, and books that I did were utilizing online resources like Photoshop, Adobe Flash, and Paint Tool SAI to create animations, 3D models, digital illustrations, and zines, all inspired by a collective love for a specific piece of visual culture. Most interesting to me were the wide variety of free tutorials made by these content creators.

Through this online mode of experience, I created art inspired by the artistic ideas absorbed from online spaces: ranging from notes on color theory to anatomy and composition, all while remaining unaware of the greater context of internet art as a specific genre of art making. As I grew older, I continued to participate in online art communities in my own artistic practice, often collaborating with online artist peers to create original works or pieces inspired by a variety of characters and stories from fictional media. Given the ways in which the internet significantly influenced my artistic development, my motivation for this study grew from my personal experiences with

internet art and from my desire to see this phenomenon more intentionally included in K-12 arts teaching.

Background of the Study

The Internet age began in 1993 when the base code of the World Wide Web was made free to the public (Respini, 2018). While many K-12 teachers lived through the development of the information superhighway, their students are unaware of a world without the internet (Sweeny, 2010). Like my own experiences, many K-12 students not only know of this online world but participate in it on a regular basis through social media, online classes, and general internet browsing.

Due to the widespread use of personal computers provided to students by K-12 school systems, online and digital technologies have been incorporated into widespread arts learning and art teaching standards (Patton & Buffington, 2016). As precipitated by COVID-19, my in-person teaching experiences shifted to online learning. I experienced, first-hand, students using the internet for many facets of their schooling on a regular basis. For example, all students were issued school-sponsored laptops to complete their schooling virtually from home and were required to bring those laptops to school if they opted for in-person instruction in the latter half of the year. In the art classroom, students were provided access to videos, artist and art history sites, and art tutorial websites as well as demo videos recorded by me and my cooperating teacher for specific projects. In addition to their online learning, students engaged in the broader online world in their free time to watch videos, play games, and socialize. It is perhaps undeniable that the internet became constitutive of many students' realities, one in which the digital spaces

that they interacted with ultimately shaped or defined their beliefs, behaviors, opinions, ideologies, and perceptions of the world around them.

Given the internet's omnipresence in student's lives, whether engaged online in their free time or via school, recognizing the impact the internet has on their educational experiences is paramount. Although many art classroom lessons have had students use the internet to research artist biographies and to share traditional works in a classroom-based social media feed, actual lesson content wherein students delve into the digital media inherent to the internet has been less common (Patton & Buffington, 2019). Educators who lack experience with technology and internet awareness are likely not motivated to incorporate content related to internet art due to their own knowledge gaps, despite the improvements upon reading, math, academic, and social skills that result from the incorporation of technology into teaching practices (Freedman, 2021). One of the central duties of an art educator is to help students understand how contemporary visual culture is directly influenced by the travel of ideas, imagery, and concepts across the internet so that students may navigate the vast digital landscape with a critical eye (Duncum, 2001, 2010). As such, it is crucial for art educators to teach about the history and practices of internet art (Smith, 2020; Castro et al., 2010).

Purpose of the Study

The purpose of this study was twofold: First, to collect and summarize historical precedents and developments regarding internet art, from its inception to current day, and secondly, to create an interactive timeline resource (ITR) designed for K-12 art application. This ITR was to be a designated website hosted on Google Sites containing historical information on internet art presented in an interactive, multimedia format that

contains text, images, video, animated drop-down menus, links to different sections, and links to additional resources beyond the site. The ITR provided a historical overview of internet art for art educators interested in implementing this content in their curriculum as well as fill in any gaps of background knowledge of internet art as a product of online platforms and communities.

Statement of the Problem

Students engaged with internet art on a regular basis through social media, internet browsing, and communication programs (Sweeny, 2010) However, this engagement was likely based on an uninformed sense of the history of these applications or processes. Recommendations that students engage with social media in the K-12 setting have been recognized (i.e., Duncum, 2001, Patton, 2010, Hostert, 2010, Knochel, 2013, Chung, 2010, Castro et al., 2010, Smith, 2020, Freedman, 2021, Sweeny, 2021). However, examples of research and scholarly articles that have addressed the actual history of internet art as a feature of a student's K-12 art experiences are limited, most of which lament the lack of inclusion in K-12 art (i.e., Sweeny, 2021; Colman, 2004).

To adequately incorporate both internet art and visual culture into the art classroom, art education scholars suggested that teachers should be more familiar with the online visual world that their students are so deeply immersed in (Knochel & Patton, 2015). From early age net art to contemporary digital art-based communities, introducing the history of internet art that directly relates to current student experience can enrich their knowledge while broadening the range of art media used for their art making (Sweeny, 2010). Providing background knowledge on internet art, social media platforms, and the historical context of online visual culture not only refreshes the

historical content taught in classrooms, but also creates opportunities for students to directly engage in a more informed capacity regarding the pervasive impact that the internet has on their immediate lives.

Statement of Need

It is important to develop knowledge of the internet, as it became a central aspect of our daily lives over the course of the early 21st century (Peppler, 2010). Contemporary visual culture has been saturated within online content, which resulted in an area of visual culture that holds real relevance for art education curriculum design and implementation (Freedman, 2021). Students have participated in online communities and content sites regularly, therefore it is crucial to develop student and teacher knowledge of the internet (Sweeny, 2010; Castro et al., 2010). The development of a historical overview and ITR aimed to serve as a resource to supplement knowledge and understanding of internet art and its impact on visual culture for both teachers and students.

Research Questions

To present a chronology of internet art and to produce an interactive timeline resource (ITR) that can serve as a curricular resource for art educators, the following research questions were proposed:

1. What is the history of internet art, and what key figures, communities, and subcultures exemplify the phenomenon?
2. How are contemporary online artists' behaviors in communicating, collaborating, and discussing art influenced by previous iterations of internet art?
3. In what ways can internet art and its history inform K-12 art education theory and practice?

Limitations

The limitations of this study revolved around the short duration of the research period, the methods used to collect and analyze research data, and the ever-evolving nature of the internet and internet art. As the end goal was to create an ITR, this study borrowed from two research methods, namely grounded theory and historical analysis, but did not fully commit to traditional precedents. The ITR consisted mainly of secondary sources due to the scope of the study, lack of participants or interviews, and the time span of internet art history covered. The fluid nature of the internet also limited this study as it would become outdated after a short period of time. The lack of participants resulted in an inability to cross cheek or validate findings beyond what was available from secondary sources of internet art (Flick, 2018). The use of grounded theory also limited my ability to avoid researcher-induced bias in addition to my own experiences and behaviors online.

Procedural Overview

This study began with the construction of a literature review on internet art history and K-12 applications structured according to the three research questions proposed by this study. Following historical analysis practices, this review provided a chronology of internet art based on scholarly literature and secondary sources that addressed concerns regarding lack of internet art historical content in K-12 art classrooms (Conrad & Serlin, 2011). Initial research referenced a preliminary hypothesis that highlighted the irony of students using the internet in art class and daily life yet receiving little to no teaching of how the internet has developed (Sweeny, 2010, 2021). Following principles of grounded theory, this hypothesis was updated based on trends and important

developments found in the body of research. After the completion of the literature review, the collected research was organized for inclusion in a publicly accessible ITR hosted on a dedicated Google Site.

Definition of Terms

In this section the key terms of this study are defined for reader clarity. The included diagram illustrates the relationships between the main historical categories of internet art included in this study.

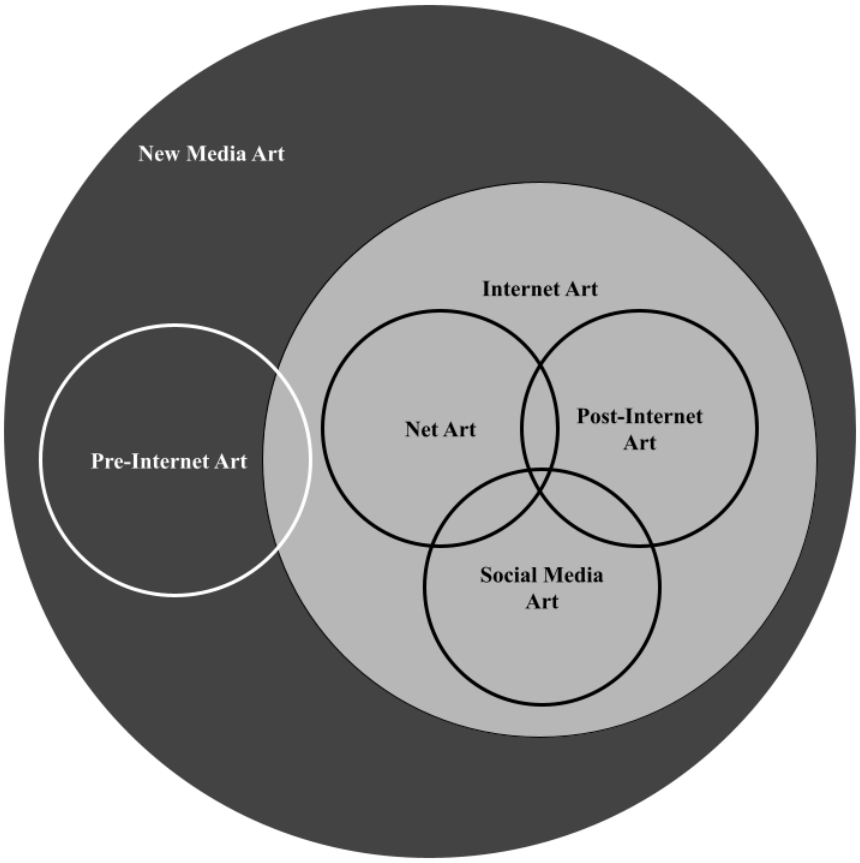

Figure 1 - Venn diagram delineating the connections between key terms related to internet art history.

Internet Art: Form of new media art distributed via the internet, often drawing viewers in to interact with works of art ("Internet art," Wikipedia, 2022).

Net Art: Art created using the internet as the artistic medium (Smith, 2020).

New Media Art: All-encompassing term that refers to contemporary art made, edited, or shared using new forms of media technology; includes digital art, internet art, and virtual art (Castro et al., 2010). Covers a variety of digital art forms including robotics, virtual reality, video games, and computer animation (Zimmermann & Emspak, 2017).

Pre-Internet Art: Art created prior to the public release of the internet. Typically created using analog machines and manual code to generate digital art with early computers and custom devices. Serves as the precursor to future iterations of digital art processes. (Sweeny, 2021)

Post-Internet Art: Art created that uses the internet as a navigation tool for sharing art (Quaranta, 2015). Also describes an era characterized by the "despecialization of the internet" (McHugh, 2010) in which the internet gradually became more generalized as more and more users engaged in online activities (Zimmermann & Emspak, 2017). The term post-internet was coined by Marisa Olson "sometime between 2007 and 2009" (McHugh, 2010; "Marisa Olson", Wikipedia, 2022).

Rhizome: A theoretical framework of non-hierarchical connections between different elements of a field of study (Deleuze & Guattari, 1980). Based on the type of organism of the same name, the rhizome consists of branching paths and connections in an interlaced structure. This term can be applied to the structure of a research theory and to the structure of the internet itself (Vieira, 2007).

Social Media: Websites for social networking and microblogging through which users create online communities to share information, messages, ideas, and other content (Merriam-Webster, n.d.).

Social Media Art: Art that is created and shared to social media sites, commonly within online social groups under a central theme or style. Similar to post-internet art in the sense that artists use online social media to navigate and share their work. (Merriam-Webster, n.d.)

Chapter 2

The literature review serves as the central method of data collection for this study. Following grounded theory, each major section of the literature review was punctuated with reflections on how my thought process and hypothesis changed according to the collected information (Glaser & Strauss, 1067; Chong & Yeo, 2015; Flick, 2018). In addition, each section was constructed following historical analysis principles by collecting and consolidating information to provide an overview of internet art (La Pierre & Zimmermann, 1997; Thorpe & Holt, 2008).

Literature Review

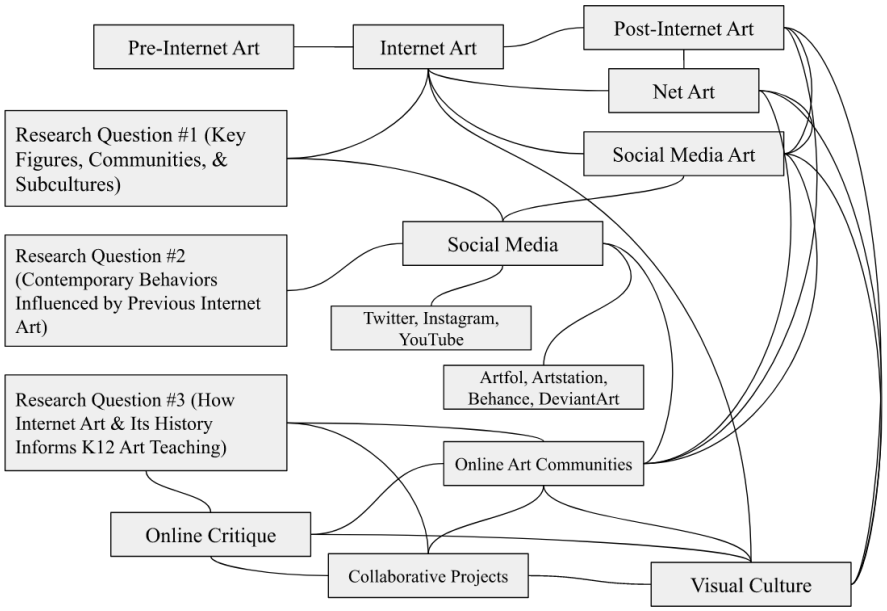

Figure 2 - Conceptual framework of this literature review following rhizomatic research theory (Deleuze & Guattari, 1980).

Hypothesis A

Based on my personal experiences in teaching, the initial hypothesis of this study questioned the irony of students using the internet in art class and daily life but receiving

little to no teaching of internet art history and development (Sweeny, 2010, 2021). At the beginning of the research process, I investigated recent examples of internet art present on social media roughly between 2010 to 2022 due to my familiarity with current internet art trends. Further inquiry into the overall topic proved that a much wider range of time should be covered to encompass a holistic summary of internet art history that would properly address my concerns. This thought process led to the first stage of research on internet art focused on key figures, subcultures, and communities to provide a historical overview of internet art. Starting with a brief introduction to the internet itself and the various stages of development it went through, the literature review continued through each generation of internet art, following pre-internet, net, post-internet, and social media artists. Each section chronicled key individuals, groups, and developments in internet art circles in a variety of contexts.

Historical Overview of Internet Art

The internet was officially created in 1993 when Tim Berners-Lee released the source code for a public network between computers to the public for free (Physics Today, 2016). Prior to the public release of the internet, innovations in computer technology development since the 1960's laid the groundwork for the publicly accessible World Wide Web (Zimmermann & Emspak, 2017). The first generation of the internet after its public release was referred to as Web 1.0, a period between 1995-2005, characterized by the read-only format of websites in which users could access one-way sources of information using computers (Handsfield et al., 2009). The next generation of the internet was Web 2.0, spanning roughly from 2004 to present day (Buffington et al., 2010). Web 2.0 was recognized as an era of online collaboration, communication, and

sharing wherein users were prompted to create their own content and share it with others (Quaranta, 2015). This practice was considered the basis for the prevalence of social media and self-publishing platforms commonly used today (Castro et al., 2010).

The third internet generation, Web 3.0, while not yet fully implemented, is defined as the semantic or intelligent web, characterized by the use of artificial intelligence to tailor an individual's online experience based on their browsing behaviors and interests (Lassila & Hendler, 2007). Common social media sites that have existed since the early 2000's include YouTube, Twitter, Instagram, and Facebook (Zimmermann & Emspak, 2017). In addition to social media sites for general browsing, entertainment, and sharing personal life events with others, sites such as DeviantArt and Artstation provided online platforms for artists to share their art and curate digital portfolios (Carter, 2016; Akdag & Salah, 2013).

The internet was characterized by its rhizomatic structure, referencing a philosophical framework based on living organisms that have nonlinear, non-hierarchical branching structures (Wilson, 2003; Bluemink, 2015; Deleuze & Guattari, 1980). As Kholeif (2016) pointed out, the internet can be used as a lens through which art and technology are narratively linked, likening the rhizome structure of the internet to its physical counterpart of cables and wires. Even the synonyms used for the internet, such as the net and the web, are lexicons that outlined the rhizomatic ways that information, connections, and networks have been structured on the internet (Eco, 1986; Zimmermann & Emspak, 2017). Digital art magazine *Rhizome,* founded in 1977, took inspiration from the concept of a rhizome as the magazine documented key events, commissions,

scholarships, and digital works over the course of the internet's existence (*Rhizome*, 2003).

Early stages of internet art have been documented online in the form of blog pages and dedicated websites where artists created and shared net art, using the internet itself as an artistic medium (*Net Art Anthology,* 2019). Some examples include Digital Art Museum, *Electronic Superhighway,* and Respini. Founded in 2000, Digital Art Museum was an online resource of digital art that covered a variety of new media artists and artworks that included internet art examples (Digital Art Museum, 2000). Koleif's *Electronic Superhighway* (2016) provided an anthology of artists from before to after the internet up to 2016 that included a variety of contributors who provided historical context for the progression of internet art, including a timeline of events that highlighted central areas of internet art such as net art and post-internet art (Kholeif, 2016). Additionally, Respini (2018) curated a timeline of internet art that crossed over with the examples present in Kholeif's selection that included examples up to 2018. Carlson (2017) provided historical information focused on crucial advancements in computer technology prior to and in tandem with the internet, which provided a wider range of focus that went beyond, but still included, art and artist examples.

Despite the documentation of internet art in publicly-accessible magazines, journals, blogs, and websites, museum exhibitions either have not included internet artworks within digital art exhibitions or have inadvertently limited the scope of the exhibited pieces (Wilson, 2003). During the period in which net art and post-internet art was being made, the many artists and cultural shifts that took place online since 1993 have not been closely documented as key elements of art history to be recorded and

taught in K-12 schools (Sweeny, 2021). Based on these findings, I believe that the documentation of internet art has focused largely on art exhibited in institutionalized gallery spaces both in-person and online. This study was conducted to include key figures and events from previous documentation of internet art, going beyond the institutional gallery setting to include internet art created in the more open and freely accessible world of internet art present on social media.

Pre-Internet Art

Prior to the public release of the internet in 1993, artists were creating works using analogue machinery and manual computer input, laying the groundwork for many current digital art programs and processes that routinely contributed to the creation of internet art (Respini, 2018). Many artists experimented with approaches that would later become embedded features of technology-based art techniques, such as the software linking system called hypertext in early coding and computational processes (Hoffman, 2017). Whitney pioneered computer animation by creating an animated demo reel titled *Catalog* (1961) using an analogue computer he built from a WWII anti-aircraft gun director (Martz, 2020). Whitney was considered one of the founders of computer animation, as he manually performed functions to create his animations that later became common on digital computers (Carlson, 2017).

In 1938, mathematician and fellow computer art pioneer Nake created *Homage to Paul Klee* (1938) by entering an algorithm directly into a room-sized computer, named ER 56, that mathematically interpreted a 1929 Klee painting that resulted in a piece referred to as the most algorithmically complex work of its day (Smith, 2019). In 1968, Molnar turned her vision *Machine Imaginaire,* a self-contained sketch of a computational

program invented based on her involvement in the Op-art and Kinetic Art movements, into a genuine computer program that generated her art (Carlson, 2017). Molnar repeatedly transformed and deformed geometric shapes using an early computer that produced illustrations through a machine plotter, a practice that established Molnar's stature as one of the few artist pioneers who used a computer as a creative medium (Guillermet, 2020). In a similar fashion to Molnar, Mohr used early computers between 1973 and 1978 to generate work that went beyond the limits of symmetry and logic, often depicting cubic imagery in repetitive or disjointed compositions (Carlson, 2017).

Cohen created AARON, a computer program that created original artistic images based on manually coded input from the artist, which was frequently used throughout the artist's life to create large-scale colorful paintings from 1972 up until 2016 (Sundararajan, 2021). Cohen's work, produced through AARON, led to the coined term *digital art* in the 1980's by art critics (McCorduck, 1991). Schwartz pioneered the use of computers in what soon became known as computer-generated art in her work, recognized for its aesthetic success and for helping establish computer art as a viable field to pursue (Carlson, 2017). In addition to her career as a computer artist, Schwartz contributed to scientific developments in visual perception, sound, electronic art analysis, restoration, and reconstruction through the construction of 3D models (Carlson, 2017). As demonstrated by these artists who focused on early computer technologies in their works, the roots of internet art are intermingled between artistic and scientific endeavors.

Net Art

With the release of the source code supporting the first web browser, Web 1.0 lasted from 1995-2005 and was read-only, meaning information could be accessed but

not modified, allowing users to only access one-way information connections (Handsfield et al., 2009). During the period of Web 1.0, "network artists" (Connor, 2013) used the internet itself as an artistic medium and created works using Hyper Text Markup Language (HTML) referred to as Net Art (Quaranta, 2015). Net artists were propelled by their enthusiasm to define their movement and often expressed their concerns about future developments on the internet in a commercial sense, taking on an anti-corporate stance in response to increased commodification of internet services (Greene, 2000).

Many of the early instances of net art consisted of HTML websites and email lists created by net artists (Greene, 2000). Artist coalition Joan Heemskirk and Dirk Paesmans, under the acronym JODI, created one of the most iconic pieces of net art, *jodi.org*, in 1995. *Jodi.org* was a site made using HTML code and diagrams that allowed users to enter a labyrinth of digital imagery and unclear navigation that provided a warped version of browsing for information online in Web 1.0 (Knochel & Patton, 2015). Another central piece of net art created using HTML code was *My Boyfriend Came Back From the War*, created by Lialina in 1996, a piece that invited users to follow a fictional "net film" with a disjointed emotional narrative via hyperlinked text and imagery (Net Art Anthology, 2019; Kholeif, 2016). Lialina transferred her background as a filmmaker and film critic into her net art work, adjusting her typical artistic approach to fit an internet-informed, HTML format and create what she referred to as net films (Bosma, 1997). Her work often explored themes centered around romantic relationships, physical beauty, and legal documents through a programming practice that set her apart from the male-dominated field of computer science at the time and led to regular commissions and awards (Greene, 2000). Both Lialina and JODI were regarded as iconic examples of net

art (Respini, 2018), providing an accessible entry point for a historical dive into net art while showcasing its key components of HTML coding and networked imagery.

In addition to stand alone website projects, many net artists congregated in online spaces hand-coded by members of the community (Greene, 2000). Staehle created "*The Thing*", an early example of online forums that focused on contemporary art, cultural theory, and later an email and internet service provider (Staehle, 1991). "*The Thing*" allowed users to send messages, share gallery announcements, and debate creative and cultural theory (Greene, 2000). The site eventually became a platform for artist and non-artist contributions alike (Staehle, 1991). In a similar vein, Bunting took advantage of the increased presence of personal computers and created *Kings Cross Phone-In* (1994), a webpage that listed phone numbers connected to all of the public pay phones in London's King's Cross Station (Kerr, 2015). Instructions on the webpage invited site viewers to call the phone numbers on a specific date, a plan that created a chaotic event of strangers meeting strangers over the phone and disrupting typical station traffic (Greene, 2000). Continuing this trend of playful/activist net art practice, Ćosić created *Documenta Done*, a website that was an identical copy of the original site of a separate art exhibition, *Documenta X* (Greene, 2000). Ćosić was also credited for coining the term net art that originated from a glitched, jumbled up email he received (Greene, 2000).

Through gathering in online spaces, net artist activist groups both arose and challenged a variety of issues related to the internet (Greene, 2000). VNS Matrix, pronounced "venus matrix," is one such activist group, composed of net artists Barratt, Pierce, da Rimini, and Starrs (VNS Matrix, 1991, pg. 1). In 1991, they released their collaborative *Cyberfeminist Manifesto* (VNS Matrix, 1991). The manifesto expressed the

group's mission to "hijack the toys from technocowboys and remap cyberculture with a feminist bent," (VNS Matrix, 1991) thus challenging the predominantly-male field of net art and internet culture through essays and projects posted online (VNS Matrix, 1991; Greene, 2000). Another net art coalition, I/O/D Collective, created by Fuller, Gree, and Pope, began their net art activism in 1994 by distributing collections of works via floppy disc that raised questions on the integration between humans and technology (Fuller, 2017). In 1997, the group created *The Web Stalker*, a web browser that deconstructed websites visited through the browser, stripping away formatting and visualizing the inner workings of the files and connections in a skeletal map of the site (Greene, 2000; Fuller, 2017). By breaking websites down to basic components, *The Web Stalker* expanded the idea of software as culture and challenged assumptions made by mainstream, corporate-owned software (Rhizome, 2013; Fuller, 2017). Many of the most ambitious net artists approached internet culture with a critical eye, questioning how consumers could effectively use the online artifacts, texts, and software available on the internet (Greene, 2000). In 1997 Garcia and Lovink wrote an essay, "The ABC of Tactical Media", that described net art practices as tactical and rebellious during a period of turbulence that anticipated the impending rise of commercialization on the internet (Lovink, 1997). These activist sentiments found within net art did not diminish as the internet progressed through increased commercialization (Lovink, 1997). The online gatherings, activist goals, inventive creations, and critiques of internet art and culture continued through the shift from net art to post-internet art (Quaranta, 2015), a shift that was multifaceted and rhizomatic in nature (Vieira, 2007; Bluemink, 2015).

Post-Internet Art

O'Reilly coined the term Web 2.0 to describe the phenomenon of internet activities that began roughly around 2004 in which users were able to use new internet features to collaborate, share, and access information and content rather than engage in a one-way experience (Castro et al., 2010). In this generation of the web, users were encouraged to provide and share content with others, a process that laid the foundations for social media and self-publishing platforms such as Twitter, Instagram, YouTube, and Facebook (Zimmermann & Emspak, 2017). The development of Web 2.0 paralleled the progress of internet art practices into a period titled post-internet art, a term coined by Olson, who is best known for her involvement in the push from net to post-internet art (Quaranta, 2015). Olson was a founding member of the Nasty Nets Internet Surfing Club (Olson et al., 2006), a blog site for artist members who shared content found online or self-made that was active from 2006-2012 (Net Art Anthology, 2019). The works and behaviors shown on the Nasty Nets site embodied the essence of post-internet art as the works were not only shared via the internet, but the subject matter was often directly influenced by internet pop culture imagery (Olson et al., 2006).

The Nasty Nets was one of many internet surfing communities and blogs that existed during the post-internet era (Net Art Anthology, 2019). Lialina hosted a personal blog site where she posted about her own work, shared artifacts found from the internet, and provided regular updates and links to her body of work (Lialina, 2022). McHugh (2009) created Post Internet, a blog site active from 2009-2010 that was both an exercise in art criticism and performance art (McHugh, 2009). McHugh consistently updated the blog during its lifespan with documentation of artworks by other internet artists along

with commentary on the internet's increasing effect on society and contemporary art (Net Art Anthology, 2019). Within the blog, McHugh expressed disdain for the increased commercialization of the internet and lamented the shift from net art to post-internet art as it coincided with increased online business and corporate monopolization of websites and social media apps (McHugh, 2009; Sweeny, 2021).

Post-internet practices expanded to include geographic and political issues related to internet culture (Net Art Anthology, 2019). Mackern (1999) created *netart latino database*, a text-only website that hosted links to the works, discussions, and criticisms of Latin American artists (Mackern, 1999; Net Art Anthology, 2019). The site served to memorialize the practices of the included artists and to mark the specific geopolitical context that defined those practices, providing a window that showed what it was like to be online in Latin America and creating internet art within the constraints of technology limitations (Mackern, 1999). Obadike used eBay as a platform for his performative work, *Blackness for Sale* (2001), a satirical project that stemmed from Obadike's observations on the lack of discussion and action on the intersection of commerce and race in response to the commodification of the internet (Sweeny, 2021). The listing was terminated after three days because it was deemed to be in violation of eBay's terms of service, which Obadike then used to call out the colonialist vocabulary and practices ingrained within internet culture (Fusco, 2001).

Laric created *Lincoln 3D Scans,* a collection of 3D models from scanned sculptures in the Usher Gallery and the Collection in London in 2012 (Jevtić & Gabrijelčič Tomc, 2018). The collection was published for free online for anyone to access, download, and incorporate into any new work without copyright restrictions (Net

Art Anthology, 2019). Publishing this data for free allowed pieces within the museum collection to be accessed beyond the geographic proximity of the physical counterparts of each 3D model, embodying post-internet ideals and behavior by transcending barriers to share art on the internet (Quaranta, 2015). While many post-internet artists upheld many of the activist, anti-racist, anti-government, and anti-corporate goals of net artists (Sweeny, 2021; Fusco, 2001; McHugh, 2009; Mackern, 1999), later entries in internet art were influenced by the already-present commercial social media sites such as Facebook and YouTube. From my observations, I felt an era of internet art that encompasses the artists, practices, and communities present in social media spaces should be included in the historical canon of internet art.

Social Media Art

The newest generation of the internet was Web 3.0, which Berners-Lee described as the intelligent or semantic web (Physics Today, 2016). Although not fully implemented, Web 3.0 existed alongside Web 2.0 in the way that internet browsing became more customized according to the background information and profile of specific internet users (Lassila & Hendler, 2007). The tailored curation of online content as outlined by Web 3.0 was, in effect, social media sites, as platforms such as Twitter, Tumblr, and Instagram were set up with uniquely coded algorithms that promoted certain types and forms of content (Knochel, 2013; Zimmermann & Emspak, 2017). The structure of social media was conducive to the creation of collaborative environments that fostered connection and communication among a group of users that sought out common interests, such as art or specific pieces of online media (Hostert, 2010). Due to the sheer number of social media artists that could have been covered, this study omitted many

artist examples that would have otherwise been included. The social media artists in this section were chosen due to their prolific contributions to internet art culture in creating collaborative works in community-oriented online spaces.

While social media has also often been used in net art and post-internet art (Buffington et al., 2010; Greene, 2000), this study used the phrase "social media art" in reference to art created using social media that exists beyond the institutionalized gallery space. Unlike previous net and post-internet artists, many artists within this social media category operated in a time after the advent of the commercialized internet, often engaging in online art for profit (Sweeny, 2021). Social media pages intended for general personal and public use, such as Youtube, Twitter, and Instagram (Zimmermann & Emspak, 2017), were often used by social media artists alongside art-specific social media sites such as DeviantArt and Artstation (Carter, 2016; Akdag & Salah, 2013). The included social media artists were not limited to a single platform, as many held a presence across more than one of the sites.

Cicierega was one key artist whose influence was the most reminiscent of post-internet art (Kendall, 2008). In one of his first works entitled *Hyakugojyuuichi,* created in 2001, Cicierega used Adobe Flash to combine pop culture imagery, non-English songs, and nonsensical lyric subtitles in a chaotic animation style he called animutation (Kendall, 2008). The style caught on quickly and various other animators created their own animutations, often referencing one another within each video (Kendal, 2008; "Neil Cicierega," Wikipedia, 2022). Cicierega's animutation genre eventually evolved beyond his reach, cultivating a complex internet environment of male-dominated discussions and deconstructions of masculinity, culture, and gender roles in both serious and satirical

ways (Kendall, 2008). Since then, Cicierega continued to create internet works that included viral puppet satire YouTube videos, musical albums under the name *Lemon Demon,* and parody blog and video game sites that playfully satirized common internet and computer programs ("Neil Cicierega," Wikipedia, 2022).

Other social media artists operated in practices that were less engaged in internet culture, e.g., blending art, collaboration, commodity, and social networking online (Sweeny, 2021). Vernhes was an Instagram-based artist who created the online art trend "Draw This In Your Style" (DTIYS) in 2108 as a celebration to commemorate a follower count milestone (Anna, 2020; Vernhes, 2018). The trend began with an artist posting an illustration which viewers could then reference to draw the posted design in their own style, creating a repeated collaborative chain of art (Anna, 2020). Van Baarle, who adopted the pseudonym Loish, was another social media artist who received a commission from DeviantArt to host a DTIYS commemorating the site's 20th anniversary (Van Baarle, 2020). In addition to her presence as a social media artist, Van Baarle worked as a freelance artist and worked in animation, video game design, promotional illustrations, and character design, eventually releasing two art books that contained notes and tutorials that demystified her digital art process (Van Baarle, 2022).

Another influential social media artist was Han, or Qinni, who was best known for her fantasy watercolor illustrations and as the creator of a popular viral meme drawing of a person lying in a puddle of tears (Han, 2020; Thiagarajan, 2020). Han created an account on DeviantArt in 2008 and started posting her anime-inspired, whimsical fantasy work that quickly gained traction, eventually leading to her receiving awards from the site and widespread recognition on the internet (Yeo, 2020). In addition to DeviantArt,

Han created accounts on Tumblr, Twitter, Instagram, and YouTube, where she shared her illustrations, paintings, process videos, and art tutorials (Han, 2020; Yeo, 2020). Some of her work dealt with themes of medicine and health due to Han's personal health struggles she endured up until 2020, when she suddenly passed away (Thiagarajan, 2020). In response to Han's passing, many artists across the internet paid tribute to Han and her work, sharing illustrations and paintings created in her honor on Instagram, Twitter, Tumblr, and DeviantArt (Yeo, 2020).

In addition to engaging in collaborative and profitable art communities online, many social media artists possessed a background in entertainment media production (Zong, 2022; Van Baarle, 2022). Zong, an illustrator, animator, musician, and social media artist who worked with a variety of digital media frequently created collaborative video works with other internet personalities, such as his animated video *Shmorby's Guide to the Internet* (Zong, 2021) featuring McElroy and the live-action music video *Breezy Slide* alongside Gilbert (Gilbert, 2022). In addition to the works he created and shared via social media, Zong was a background artist for Netflix and previously was a storyboard artist for the animated shows *Centaurworld* and *We Bare Bears* (@everydaylouie, 2022). The social media artists included in this study demonstrated the social collaborative behaviors that defined social media art practices in a contemporary context beyond the gallery space, which this study explored in further detail as the ITR was constructed.

Hypothesis B

Throughout the previous stage of research, I cross-referenced many central artist figures from net art and post-internet art categories alongside scholarly literature. My

prediction that many social media artists lack presence in academic and institutional sources proved to be true, leading me to instead cross-reference selected examples with interviews, direct trends, and affiliations with websites or work experiences in art and design career fields. After reviewing the gathered historical information on internet art, I was able to evaluate the extent to which my initial hypothesis was addressed. I determined that the collected information reflected a rich history of internet art, and the next step was to steer my research towards the incorporation of internet art within visual culture and K-12 art applications.

Visual Culture

The internet became a central influence of contemporary visual culture, defined as human culture based on visual media with interdisciplinary roots (Duncum, 2002; Knochel, 2013). Over time, contemporary art involved digital media, computers, and hybrid media forms (Zimmermann & Emspak, 2017). Although art education progressed to incorporate these digital art elements in classroom media use, there was no direct incorporation of the historical elements of internet art in art education curriculum (Duncum, 2010). When implemented in art teaching, the internet proved to be a powerful tool with global access that enhanced learning and increased engagement, concept retention, and acquired skills among students (Freedman, 2021). Gaps in how technology has been used by classroom educators hindered the capacity to incorporate internet art into K-12 curriculum, which led to additional gaps in student knowledge of current visual culture influences (Freedman, 2021).

Post-internet art has served as a mode of inquiry that encourages collaboration in artmaking processes (Peppler, 2010; Quaranta, 2015). This counterbalanced the isolating

digital and traditional classroom practices wherein students completed their work in their own individual workspace (Smith, 2019). With a computer connected to the internet, students were provided access to social networking sites where they gathered information, listened to music, watched videos, played video games, and constructed their own communities (Chung, 2010). While the internet was generally understood by young people as a site of entertainment and social interaction, many online experiences were also considered to be educational (Castro et al., 2010). Participatory collaboration and informal mentorship naturally occurred online on sites designed to foster communities where skills were shared between experienced and novice artists (Castro et al., 2010; Peppler, 2010). Many students used the internet to escape real-world norms and expectations to engage in a variety of activities away from adult supervision, leading to learning about themselves and others by internalizing social norms, values, and beliefs conveyed via internet media (Chung, 2010). When active online, they often engaged in fan culture united under a common interest within groups that both informed their visual culture experiences and artmaking aspirations (Freedman, 2010). Students created connections to visual culture beyond the classroom when using the internet to produce and publish their own work and connect their online actions to those of their peers (Hostert, 2010).

Internet art was a natural entry point for art teachers to invite their students to examine visual culture and explore contemporary issues that students may already be familiar with (Castro et al., 2010; Sweeny, 2021). The inherent two-way nature of Web 2.0 made the internet an ideal vehicle to promote teaching and learning in the arts (Buffington et al., 2010). The inclusion of internet art examples not only contributed to

the inherent role for educators to enable students to critically observe visual culture but also provided more accurate references to the visual culture that students were exposed to via engagement with the internet both within and outside the classroom (Wilson, 2003; Chung, 2010). Unfortunately, it was determined that current K-12 art curriculum lacked any emphasis on the background of internet art and instead more widely embraced the navigational and communicative properties that the internet possessed (Sweeny, 2021, pg. 48).

K-12 Art Education Applications

Art teachers used the internet to share lesson plans, links, resources, museums, blogs, and sites that related to art classroom interests as well as to collaborate on the same documents and educational projects online (Buffington et al., 2010). Educators have also embraced the communicative features of the internet in art classroom critique through the use of online galleries, email, and social media sites (Sweeny, 2021). While art educators have incorporated a variety of contemporary teaching strategies using the communicative features of the internet (Buffington et al., 2010), the extensive history and collaborative efficacy of internet art practices has not been explored in K-12 art education curriculum (Sweeny, 2021).

At the time of the public release of the internet in 1993, many art educators were interested in the potential to apply behaviors, features, and concepts found within the building blocks of the internet in art education curriculum (Efland, 1995; Sweeny, 2021). Early predictions for internet-based art teaching strategies highlighted practical applications of the networked structure and code of the internet in a more unorthodox method of curriculum organization (Slawson, 1993). Critique in the art classroom was

conducted online in ways that parallel the browsing behaviors found on social media, facilitating increased participation from students (Hostert, 2010; Sweeny, 2021). Students who would normally shy away from sharing their thoughts during in-class critiques were found to be more likely to share responses in an online format thanks to the increased amount of time and flexibility to formulate their thoughts while navigating between peer artworks (Hostert, 2010). Additionally, holding critiques based on debate around a central conflict simulated discussions held online and engaged students in a unique way that demonstrated contemporary online art behaviors (Freedman, 2010; Sweeny, 2021). Internet art has also been shown to create opportunities for discussion to critically look back at the history of the internet and determine key sources of trends, behaviors, and communities that unfolded in online spaces (Sweeny, 2010). The structure of the internet also provided opportunities to explore art history by exploring virtual galleries and accessing historical information in multiple formats such as image, video, text, graphic, and audio sources (Koos & Smith-Shank, 1996).

Despite the early predictions of the usefulness of internet art practices in K-12 art education, communication networks were more heavily incorporated into arts pedagogy while internet art itself was not (Sweeny, 2021). Based on the extent to which internet art influenced visual culture (Hostert, 2010; Freedman, 2021), it seemed it would be a natural inclination to include key histories centered around post-internet and net artists alike within visual arts curricula. Internet art and the related technologies used to create it can “advance reform, creativity, research, planning, and assessment” in the art classroom (Dunn, 1996, p. 10-11). To properly incorporate internet art concepts and practices in the art classroom, educators needed to view the “dynamic, socially-engaged qualities of

net.art practices," within a historical context (Sweeny, 2021, p. 50). Through the creation of this study and ITR, providing a historically-informed account of internet art history aimed to address these concerns around the lack of presence held by internet art within the overarching history of art taught in K-12 schools (Conrad & Serlin, 2011).

Previous studies revealed the need for art teachers to demystify internet art with their students, showcasing that when provided with internet art examples and sufficient support in learning new digital media, such as HTML coding and digital art programs, students were able to overcome initial frustrations with the subject (Colman, 2004). Additionally, while some students were familiar with traditional art forms and the internet, the knowledge they possessed did not necessarily enable students to analyze and talk about internet art (Colman, 2004). Without sufficient guidance from an art educator, students might not have understood internet art as a separate entity from websites and online spaces that they were familiar with (Colman, 2004). Implementing internet art within art curriculum has proven to be a challenge in and of itself, as even the most cost-effective programs still required training, computer specialist support, and powerful computer hardware (Sweeny, 2010).

Hypothesis C

Regarding my hypothesis that questions the lack of inclusion of internet art in K-12 art education, it was apparent that a plethora of scholarly and academic information was available on the subject itself. Many scholars proposed exciting applications (i.e., Sweeny, 2021; Duncum, 2010; Freedman, 2021; Peppler, 2010; Smith, 2020; Castro et al., 2010; Chung, 2010; Buffington et al., 2010; Respini, 2018; Efland, 1995; Slawson, 1993; Dunn, 1996; Colman, 2004) while also pointing out the lack of integration within

K-12 art classrooms (i.e., Sweeny, 2021; Colman, 2004). Much of the information found in this section of the study regarding internet art within art education was from scholarly resources, which may be inaccessible to a wider audience due to the lack of institutional access to scholarly documents and the academic language used within many of the examples included in this literature review. In reviewing this section of the literature, I updated my hypothesis to include the creation of an ITR for use in K-12 art teaching to contribute a more accessible, free, and intuitive body of information to the overall subject.

Timelines as a Feature of Education

Timelines are undoubtedly a common learning resource (Denial, 2013). Presenting historical information in a timeline has been proven to generate visually appealing learning opportunities that allow students to develop knowledge of the past and to think critically to make connections between different moments of history (Chapman, 1993). They also help students organize mass amounts of information by visually mapping the context surrounding an event to make observations on cause, effect, and correlation across a variety of subjects (Denial, 2013). Textbooks have often been organized chronologically following a timeline of events specific to the subject (Carlson, 2017; Brugar & Roberts, 2014; Denial, 2013). Subjects including science, history, and reading often incorporated timelines both as teaching tools to facilitate content and as student activities to reinforce learning (Foulk, et al., 2020). In art history, timelines have been used to chronicle art historical periods and developments (Gilbert, 2016). Timelines were used to explore artists, styles, discoveries, and techniques found throughout history, effectively tackling many different concepts at once (Schmidt, 2007). Within art

education, timelines could be incorporated in ways similar to those previously mentioned to provide frameworks through which the history, programs, and theories of art education are chronicled (Hamblen, 1985).

Within K-12 arts and non-arts classrooms, student timeline projects have been created with traditional materials or, in recent years, using presentation-creation websites that enabled the incorporation of multimedia elements such as images, videos, and embedded audio alongside text (DeCoito). When implemented as a learning material, timelines have been effectively visualized using digital software by providing an interactive mind map of content (Lee & Yau, 2018). Because most of the history of internet art included in this study was based on digital materials, the consolidation of historical information within the ITR naturally lent itself to the use of an interactive digital format hosted on a Google Site. Using digital tools to create an accessible, interactive timeline led to improved understanding and knowledge retention in the classroom environment (DeCoito, 2020).

Conclusive Reflections

Further exploration in this final section of the literature review justified my plan to consolidate historical information on internet art into an ITR for K-12 art curriculum application. In the intended ITR format via Google Sites, the information was made to be more accessible based on dividing content into smaller subsections for easier browsing. Within each page and subpage of the site, links to other relevant pages within the ITR were included to reflect the rhizomatic nature of internet art. After confirming my hypothesis that there was a lack of implementation of internet art in K-12 art teaching, lack of focus on social media artists, and a prevalence of literature not directly accessible

to K-12 art educators, I felt justified in producing an application for teaching and learning in the K-12 art classroom.

Chapter 3

Methodology

Description of Study

Following principles of grounded theory (Glaser & Strauss, 1967; Chong & Yeo, 2015; Flick, 2018) and historical analysis (La Pierre & Zimmermann, 1997; Thorpe & Holt, 2008), this study collected research from scholarly literature and online sources to construct a historical overview of internet art within a literature review based on a preliminary hypothesis. This study concluded with the construction of an ITR hosted on Google Sites that provided an interactive, chronological account of internet art history.

Procedure

This study began with a literature review based on the initial hypothesis that questioned the irony of students using the internet in art class but receiving little to no teaching of internet art history and development (Sweeny, 2021). At the end of the historical section, the hypothesis was revisited and adjusted based on collected internet art history, which led to the collection of literature focused on the connections between internet art, visual culture, and classroom applications. The hypothesis was revisited for further adjustment, which then led to the preparation of information found in the literature review within a spreadsheet for the creation of an ITR. Historical information on internet art was then included in an ITR hosted on Google Sites that developed following a rhizomatic structure.

The historical information in the literature review was sorted into a spreadsheet table that was divided into each of the internet art eras, including pre-internet, net, post-internet, and social media art. Each era was then organized into subcategories including

artist names, selected works, description of selected works, year(s) of creation, media type, and important links. After consolidating all historical information, the spreadsheet was then used to cross reference with the ITR during website construction, helping to both provide key information and to cross reference, ensuring all content from the literature review was included.

Pre-Internet Art					
Artist Name	Selected Work(s)	Description of Work(s)	Time of Creation (Year)	Media	Important Links
Frieder Nake	*Homage to Paul Klee*	Entered an algorithm directly into a room-sized computer, named ER 56, that mathematically interpreted a 1929 Klee painting. This resulted in a piece referred to as the most algorithmically complex work of its day.	1938	Computer drawing	
John Whitney	*Catalogue*	Early computer animation reels made from an analogue computer built from a WWII anti-aircraft gun director.	1961	Comuputer animation	
Harold Cohen	*AARON*	Machine that was programmed to create original artistic images based on manually coded input from the artist, frequently used throughout Cohen's life to create large-scale colorful paintings up until 2016. AARON performed many functions that are now standard in most digital painting programs used today.	1972	Computer painting	
Vera Molnar	*Machine Imaginaire*	Self-contained sketch of a computational program invented based on her involvement in the Op-Art and Kinetic Art movements. Turned this sketch into a genuine computer prgram that generated her art in which she repeatedly transformed and deformed geometric shapes using a machine plotter. Molnar is one of the few artist pioneers to use a computer as a creative medium.	1968	Computer drawing	
Manfred Mohr	*see linked website*	Used early computers to generate work that went beyond the limits of symmetry and logic, often depicting cubic imagery in repetitive or disjointed compositions.	1973 to 1978	Computer drawing	http://www.emohr.com/
Lillian Schwartz	*Pixillation (http://lillian.com/1970-pixillation-4-min/)*	Pioneered the use of computers in what is now known as computer-generated art in her work, recognized for its aesthetic success and for helping establish computer art as a viable field to pursue. Also contributed to scientific developments in visual perception, sounds, electronic art analysis, restoration, and reconstruction through the use of 3D models.	1960's and 70's	3D modeling	http://lillian.com/

Figure 3 - Spreadsheet layout used for the ITR historical information organizer within each internet artist is included alongside a selected work, description of work, time of creation, media, and important links to the artist's own sites or online works.

During the first round of website development, a home page was created to serve as the landing for the site that provided background information on the motivation behind this project and a definition of terms. Each era of internet art was then given its own site page, within which separate site pages were created for each artist. After setting up this initial structure, I felt that the layout was not easily accessible enough and would have led

to a confusing user experience. Each individual artist page was then moved together in one large grouping on each internet era page.

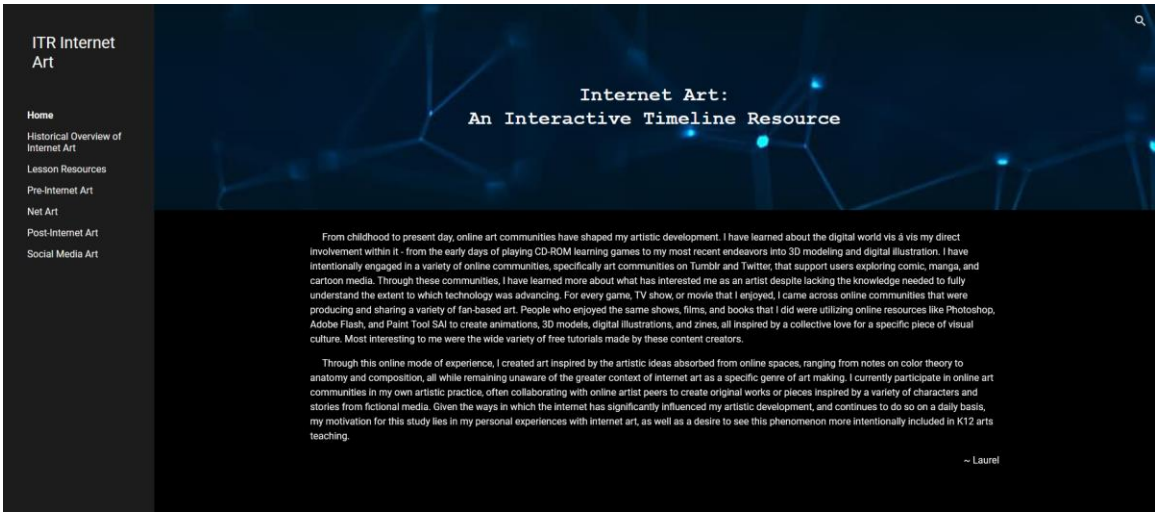

Figure 4 - Home landing page of the ITR website. The navigation panel shown in the left column included each page divided into major historical sections, a historical overview, and a lesson resources section. A personal introduction to the project was included in the main body of the webpage.

This first adjustment reinforced the goal to make the ITR easily accessible in terms of navigation and writing. Each site page began with a bulleted introduction section, included a table of contents linked to each section on the specific page, and gave each artist a section between dividers with bulleted information about the artist and a sample image of their work. Buttons linked to relevant artist websites and social media profiles were then incorporated.

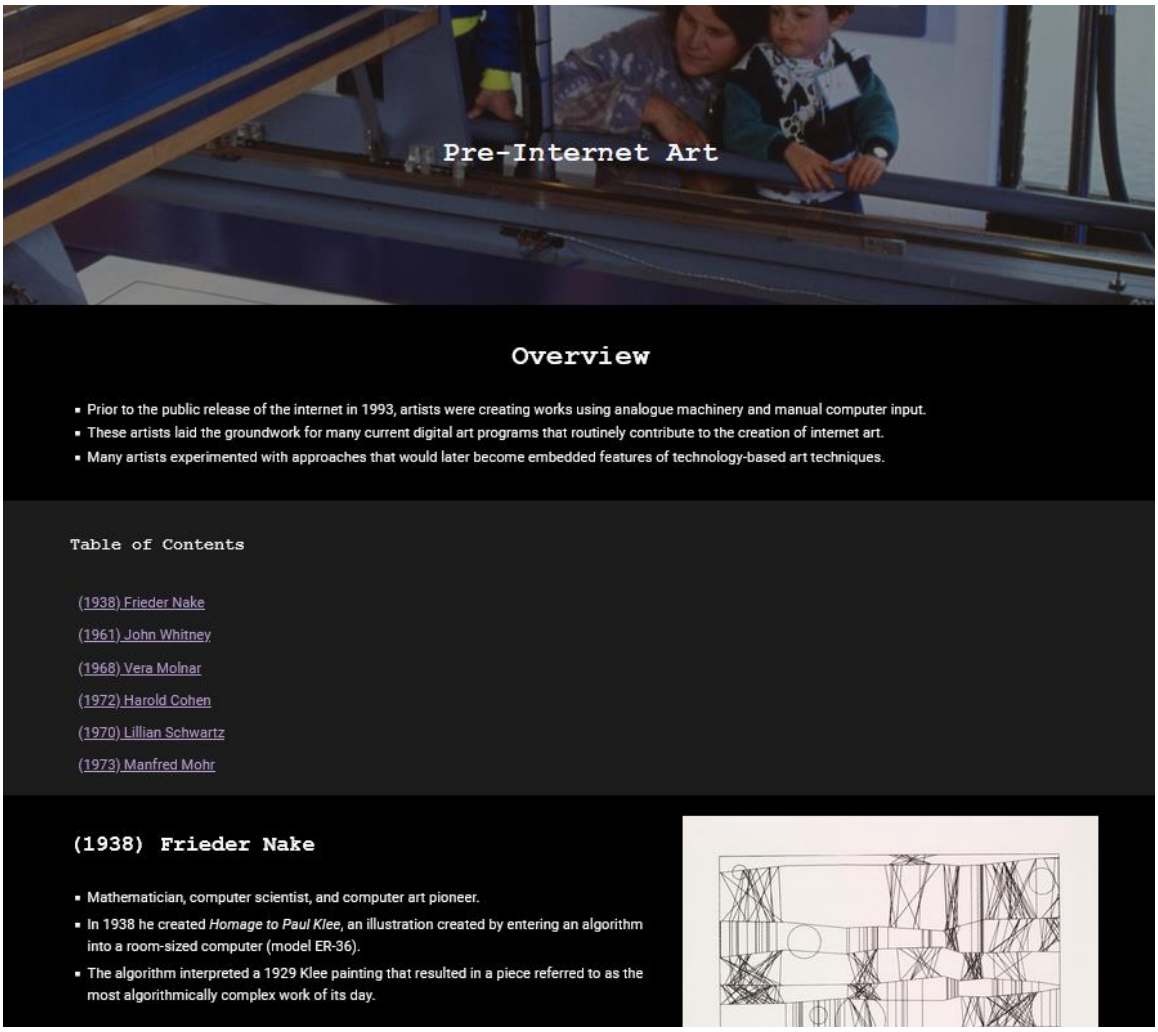

Figure 5 - Screenshot of the Pre-Internet Art page including a bulleted introduction to the movement, a table of contents for the page, and the first artist example included on the page with historical information and an image of the artist's work. Each subsequent page followed a similar structure.

After determining that the streamlined layout of historical information from the literature review was logical and accessible, further applications of internet art were added by including an additional Lesson Plan Resources page. This page was divided into subsections for each era and includes links to various websites and platforms to be used in lesson implementation. Lesson themes, critique ideas, and portfolio management

strategies were included in each section, providing a starting point for incorporating internet art into the art classroom. This section provided a basis for future extensions of the thesis, as the Lesson Plan Resources page could be expanded to include fully written lesson plans or additional links to online resources, such as video tutorials and guides.

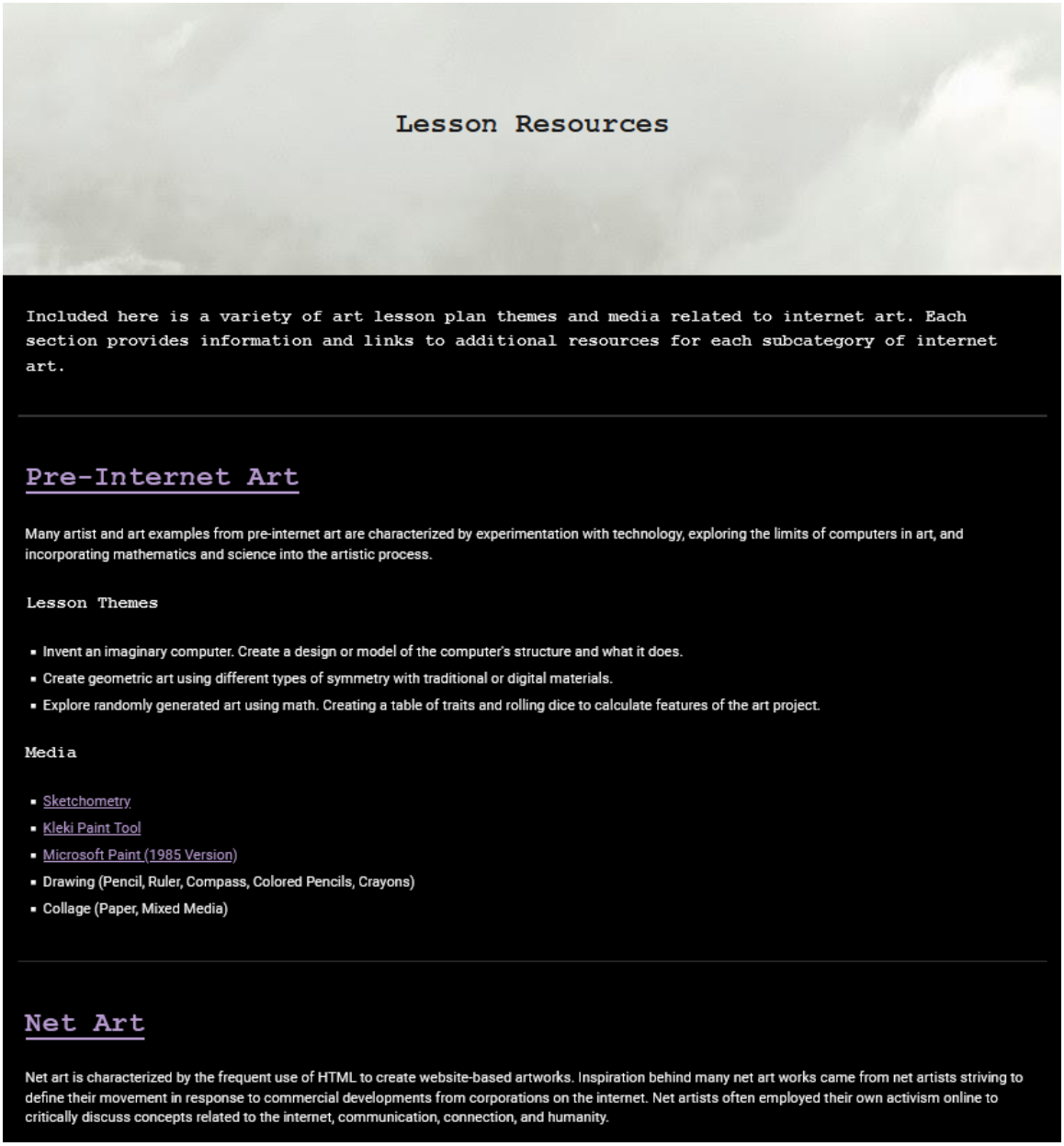

Figure 6 - Screenshot of the Lesson Resources page of the ITR. This page includes lesson themes and links to media resources following the central components of each historical section of internet art.

After a final review, diagrams were added to each historical page of the ITR to visually showcase connections in the internet rhizome between internet art generations. The same diagram was included on each subpage of internet art with sections of the diagram highlighted according to the contributions and media forms of each era of internet art.

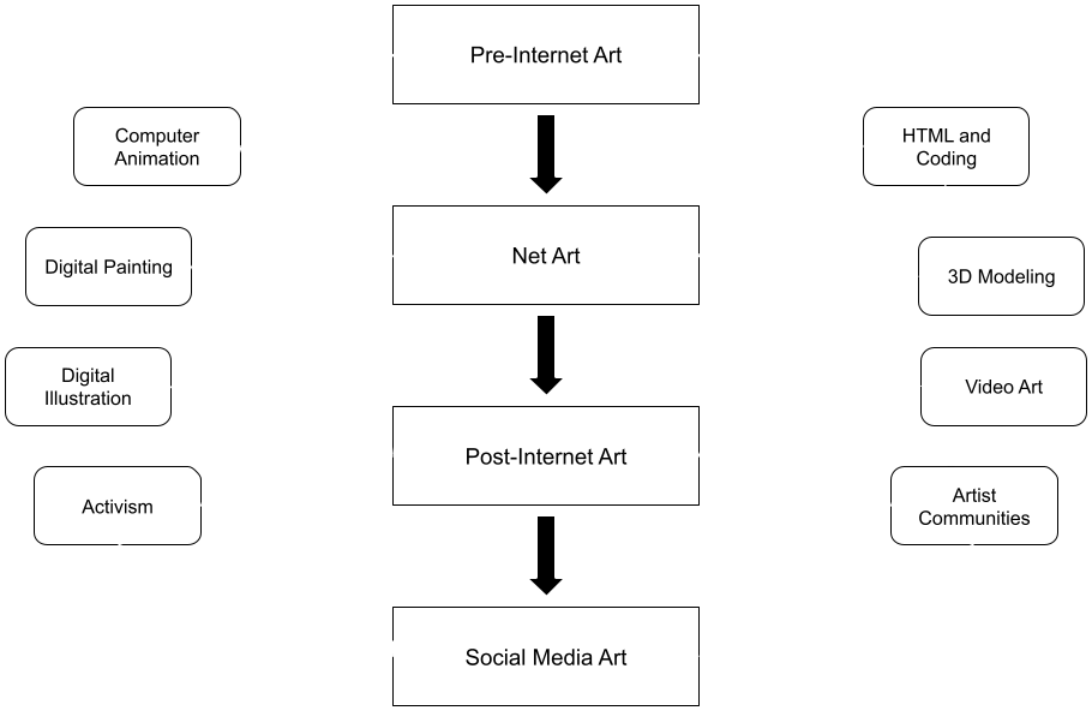

Figure 7 – Diagram included on each historical page of the ITR to visually represent connections that branched between internet art generations and the central contributions and media forms.

The ITR, in its most recent version, provides a basis for expansion in both research and teaching contexts, allowing for further historical inquiry and for inclusion of future lessons and student art examples based on internet art content. The completed ITR served as a starting point for teachers who want to integrate internet art content in their art classroom. The ITR also promoted some of the tenets associated with internet art, such as digital-based communication, collaboration, and critique.

Timeline

The research collection stage concluded with the completion of the literature review, which served as the collected body of research, in April 2022. In the first half of May 2022, historical information was then distilled from the literature review into a spreadsheet format that documented artist names, titles of works, years of works, website links, social media platforms, and media forms used throughout the various historical examples included in this study. The spreadsheet also served as a tracking tool to ensure all information was included in the ITR, which began with an initial prototype constructed on a Google Site. The ITR was then organized into the main categories of internet art (pre-internet, net, post-internet, social media), each page split into subcategories based on the active years of each artist within the movement.

The structure of the ITR was rhizomatic and developed organically with an emphasis on accessibility and user-friendly site navigation. Construction of the ITR began in the second half of May 2022, culminating in a prototype for review at the beginning of June. Additional feedback was received on the structure, language, layout, design, and accessibility of the ITR and adjusted accordingly. The ITR was completed in June 2022.

Data Analysis

Data analysis primarily took place within the literature review of this study following grounded theory principles, demonstrated by the reflective sections that punctuated the literature review and provided insight to the changes made to the hypothesis of the study based on collected information (Flick, 2018; Chong & Yeo, 2015; Glaser & Strauss, 1967). Following a structure based on the three research questions and preliminary hypothesis of this study, the literature review was constructed by delving into the historical literature on internet art and related online resources (La Pierre & Zimmermann, 1997; Thorpe & Holt, 2008). Analysis also occurred while consolidating information from the literature into a spreadsheet for use in the creation of the final ITR.

Chapter 4

In this chapter, the three research questions are addressed based on the culminating information in the ITR as informed by the literature review. Each question addressed references the gathered research and hypothesis reflections, resulting in additional considerations directly related to each question along with implications that arose during the finalization of the study. These implications are expanded upon with the inclusion of potential future extensions and points of interest related to the incorporation of internet art in K-12 art education.

1. What is the history of internet art, and what key figures, communities, and subcultures exemplify the phenomenon?

There was found to be a rich history of internet art that spanned back to the 1960's, as the internet was born from technological advancements made before it was publicly released in the 1990's (Handsfield et al., 2009; Buffington et al., 2010; Zimmermann & Emspak, 2017). The history and structure of the internet was shown to be rhizomatic in nature, consisting of branching paths in an interlaced structure (Wilson, 2003; Bluemink, 2015; Deleuze & Guattari, 1980). The internet narratively linked art and technology as many artists who created internet art were also scientists, mathematicians, and engineers (Kholeif, 2016). From the 1960's to the 1990's, pre-internet artists such as Nake, Whitney, Cohen, Molnar, Mohr, and Schwartz created works that experimented with early computer art in animation, digital art, and computer-generated art. After the release of the internet, the first generation of internet artists engaged in a practice known as net art, through which artists would use the internet itself as an artistic medium (Quaranta, 2015; Greene, 2000). Iconic net art works consisted of HTML sites, such as

jodi.org by JODI and *My Boyfriend Came Back From The War* by Lialina. Staehle, Bunting, Ćosić, VNS Matrix, I/O/D Collective, Garcia, and Lovink all shared their views on the commercialization and networked structure of the internet in unique ways, ranging from net art pieces that were contained online to pieces that bled into the physical world.

The shift to post-internet art was gradual as named and described by key figure Olson (2006), a period marked by the increased interactivity of the internet and the use of the internet as a networking tool to share art. In addition to her own work, Olson created the *Nasty Nets Internet Surf Club,* a blog site where artist members gathered to share and discuss internet art. McHugh, Mackern, Obadike, and Laric explored various aspects of post-internet culture, delving further into activist practices that reflected on the implications of a world wide web from multiple perspectives and contexts. During the time frame of post-internet art, magazines, and blog sites such as *Post Internet, netart latino database*, *Rhizome,* and *Net Art Anthology* were established, documenting internet art from the early 2000's to now. As the internet and post-internet art became more complex over time with more branching paths of the internet rhizome, social media art rose to prominence with the development of social media sites such as Twitter, Tumblr, Instagram, and DeviantArt. Social media artists Han, Zong, and Cicierega exemplified artists that filled various internet art niches, and Vernhes demonstrated the capacity for art trends and behaviors to spread online through her DTIYS trend that started in 2018. Given the wide array of artists that operated on social media in a multitude of styles, it became clear that the scope of social media art and its internet predecessors had become extremely broad.

2. How are contemporary online artist's behaviors in communicating, collaborating, and discussing art influenced by previous iterations of internet art?

Previous iterations of internet art laid the groundwork for contemporary online artist's behaviors in technologically-informed modes of socializing and networking with others (Sweeny, 2021). As many social media sites such as Twitter and Instagram have been around since the early 2000's, the ways in which artists interacted online in that time period framed how future developments would take shape within internet art spaces (Zimmermann & Emspak, 2017). Olson's *Nasty Nets Internet Surfing Club* served as a precursor to contemporary groups of artists on various social media platforms - groups that were so diverse in specificity and number that it was impossible to accurately describe them all in detail (Net Art Anthology, 2019; Sweeny, 2021).

Despite the limited structure of the internet in its early Web 1.0 stages, internet artists were keen to share their works and create art using the internet in experimental ways, setting a precedent of interest and engagement with entering online spaces in the name of art (Handsfield et al., 2009; Connor, 2013). Technological advancements, shifts in internet culture, and increased accessibility of online connections allowed internet artists to organically foster online communities and collaborative groups united under similar themes (Quaranta, 2015; Greene, 2000). Artists who worked through multiple eras of internet art also engaged in various online behaviors, often expanding upon their previous works to incorporate new features of the internet such as networking and content sharing (Greene, 2000; Quaranta, 2015). Lialina is one such artist who transitioned smoothly from net art to post-internet art, engaging in increasingly more collaborative and communicative practices in more recent instances of her work (Net Art

Anthology, 2019; Kholeif, 2016). One consideration for future research would be to include more direct examples of connections between different stages of internet art periods, whether that be in the form of artists who operated across multiple movements, artists who took inspiration from their predecessors, or artists who engaged in a variety of social media sites that grew from previous iterations of websites and blogs.

3. In what ways can internet art and its history inform K-12 art education theory and practice?

Internet art history can inform K-12 art education and theory by broadening students' and teachers' understanding of the internet through the lens of art (Sweeny, 2010; Colman, 2004). Internet art both led to and resulted from the oversaturation of online content, resulting in a visual culture that was shown to have real relevance in art education within curriculum design and implementation (Freedman, 2021). Art educators experienced with internet art and its history have suggested that teachers should be more familiar with the online visual world that their students regularly engage with (Knochel & Patton, 2015). The introduction of the history of internet art was found to directly connect to student experiences, resulting in increased knowledge of internet art and its various related media forms (Sweeny, 2010). The internet was found to be a valuable source of supplemental art teaching content such as lesson plan resources, art tutorial videos, and information on various art media forms (Sweeny, 2021; Buffington et al., 2010; Slawson, 1993; Efland, 1995; Hostert, 2010). Despite a lack of motivation among teachers to incorporate internet art in K-12 art curriculum, studies had shown the incorporation directly correlated to improved reading, math, academic, and social skills (Freedman, 2021).

Incorporating the internet beyond its use as a supplementary teaching tool opened a greater potential for virtual critiques, art discussions, and peer communication (Sweeny, 2021). Not only has internet art assisted in facilitating digital art practices in the classroom (Buffington et al., 2010), but it allowed for students to engage in written dialogue within digital spaces that enabled students to speak more freely thanks to the longer amount of time students were given to reflect on their thoughts before putting them into words (Sweeny, 2021). Hosting art class critique in the form of comments, posts, and messages has been shown to provide more time than students would usually receive in an in-person critique to formulate and articulate their ideas about art (Hostert, 2010; Freedman, 2010; Sweeny, 2021). The exploration of historical events involved in internet art has also been shown to provide a greater context for which teachers and students could understand digital art and online culture from before the internet to present day, making the art class experience more directly relevant to students' experiences in the digital age (Hostert, 2010; Sweeny, 2021; Efland, 1995). The ITR was also created to intentionally include key figures within the history of internet art that existed beyond the institutional gallery setting, going beyond curated museums to highlight artists that operated more freely across the internet on social media and blog sites.

One concern that arose towards the end of this study was the importance of knowing how to safely navigate online spaces, something that not all teachers nor students have been shown to possess (Duncum, 2010; Sweeny, 2021). Given the prolific presence of the internet in modern schooling, incorporating internet art into the curriculum in both an art history and art making context has been shown to strengthen student and teacher understanding of internet art and knowledge of how to safely

navigate online spaces (Smith, 2020; Duncum, 2001, 2010). While this study touched upon the phenomena of students absorbing behaviors and beliefs from online browsing (Castro et al., 2010; Chung, 2010), it did not fully delve into how to approach internet safety with students in the art classroom. The ITR included a statement on the Social Media Art page that highlighted the importance of using platforms with more teacher-control, such as Padlet, over social media sites, such as Instagram or Twitter, to provide online spaces for students to explore concepts related to internet art. This idea of safe internet navigation was determined to be one potential starting point to inform further revisions and updates of this study.

Another limitation to this study was the extent to which a wide variety of internet artists were included in the ITR. While a broad range of artists in terms of media forms, websites used, and art styles were included, the ITR formed as more of an introductory overview of internet art due to the limited time frame of the study and insurmountable number of artist examples. It was determined that further extensions for K-12 arts application could be made to include a greater number of artist examples in the future with the added possibility to add more depth of detail with each artist example. The Lesson Plan Resources page of the ITR provided lesson theme ideas and links to resources for classroom implementation, which could be expanded upon to include full lesson plans under an internet art theme. This extension was predicted to culminate in either the authoring of a series of internet art lesson plans or additional research to curate a selection of pre-existing lesson plans implemented across the time frame included in the ITR. An additional consideration would be to include specific arts teaching and learning standards related to internet art topics such as online behaviors, collaboration,

communication, networking, digital media, computer science, mathematics, artist careers, and online critique to provide additional support for teachers who wish to implement these concepts into their curriculum. It was also determined that additional research could be done to branch off from the historical overview provided by the ITR through participant-based studies of implemented internet art lesson plans. In addition to the lesson plan extension of the ITR's Lesson Plan Resources page, internet art lessons could be directly provided to students in future K-12 classrooms to observe the effects, outcomes, and behaviors that students develop over short and long periods of engaging with internet art. This application could reinforce the findings of this study as well as shed new light on undiscovered influences of internet art on students' experiences, visual culture knowledge, art making, and academic skill.

Chapter 5

The finalized ITR is successful in meeting my goal of creating a curricular resource for K-12 teaching in internet art. The ITR effectively provides a historical overview of internet art that serves both as an introduction to and an extension of knowledge about internet art in terms of artists, artworks, and developments that took place over the course of its history. During the development of this thesis, I often pondered the risks of incorporating internet art into the K-12 art classroom. Because many social media sites are publicly accessible, typically have age restrictions, and contain a wide range of content that may or may not be appropriate for different age ranges, I was uncertain as to whether I should suggest or warn against directly incorporating social media platforms into K-12 art practice. On one hand, it is important to take students' safety into consideration; on the other, students already engage in various social media practices in their own time. Rather than incorporate artists and historical information from internet art but omit the platforms contemporary internet artists use, it would be more responsible and authentic to incorporate social media sites into classroom use and articulate concerns over online safety, behavior, and privacy in practice. As the internet is a public place, it is crucial to teach social skills in online contexts and provide realistic examples that students will experience in their time online. Of course, considering school or parent rules regarding social media use is key, as results might vary when incorporating social media platforms into classroom use. If art educators are unable to incorporate internet art into the art classroom due to these obstacles, there are options available that simulate the online experience with more instructor control, such as Padlet or Google Classroom.

Because I engaged in an overall history of internet art through the course of this study, my own knowledge of the topic expanded beyond my original conception of internet art. My understanding of internet art prior to this study was limited to social media art and contemporary online art culture focused on promotion, marketing, and consumerism. Had I instead conducted a study based on this understanding by implementing and observing internet art in K-12 art classrooms, I would have overlooked many of the developments and figures within internet art history that took place beyond recent events on social media. One concern that arose near the conclusion of the ITR was the paradox of arranging a rhizomatic history of internet art into a linear chronological format. Due in part to the breadth of historical information covered, I could potentially remedy this by including more specific internet art phenomena to illustrate branching paths of the historical rhizome more clearly. As the completed ITR embodies, it is important to possess knowledge of the overall subject of internet art before implementing it into classroom practice. My study provides both an introduction to and expansion of internet art history for teachers and students.

Over the course of this study, I learned more about internet art as a whole and how it applies to K-12 art education contexts. The internet is not only a tool to gather artistic resources, such as tutorials or artist examples, but also a flexible entity with a variety of applications. Engaging with internet art beyond its typical usage affords opportunities to develop digital artistic skills that go beyond digital painting and illustration, with the possibility to have students engage in artistic circles with a wide range of historical contexts and forms of online artmaking. In my future classroom, I intend to incorporate not only internet artist examples and inspirations, but also crucial

discussions about internet art history and responsible online navigation in digital public spaces. With the completion of my study, the ITR serves as a resource for art educators to broaden their art classroom horizons by exploring the vast digital world of internet art with their students.

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