

Tapping in the Dark

A mixed-methods study on the perception of AI art technology among
the young generation of visual artists and designers

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ABSTRACT

As our society advances rapidly into an increasingly technology-driven landscape, the recent trend of integrating Artificial Intelligence (AI) technology in text-to-image software has sparked various repercussions in the visual art field. While previous literature has examined the influence of technological advancement on various cultural aspects, generation-specific and culturally sensitive studies remain under-explored. This master thesis takes the initiative to explore how the young generation of visual artists and designers perceive and respond to the impact of AI art as technological advancement.

Based on theories of cultural production and change of convention in artistic fields, this study reviews key concepts such as authenticity, cultural lag, and artistic educational orientation differences between the East and the West. Utilizing a mix-method research approach, this study combines quantitative surveys and qualitative semi-structured interviews as its main research instruments. Survey data collected from across five countries were followed by eight qualitative semi-structured interviews to co-contribute to the answer to this thesis's main research question.

This research reveals that both study majors, artistic work approach, and art education orientation play significant roles in predicting attitudes towards AI art technology. Analyses based on the interviews expand the research scope further by identifying the internal and external perspectives in negotiating their meaning-making and response towards AI art. Sub-categories are pinpointed at differentiating AI from one's artistic identity, urging to adapt to change, relocate the purpose of artmaking, technical assessment of AI, and socio-cultural discussions. Through the integration of results from both approaches, the analysis illustrates that youth artists and designers find it art to make meaning of AI art at the current stage and prefer contextual negotiation based on their perspective chosen. This thesis also makes its contribution by revealing that youth artists who have study background in the East tend to feel more engaged with AI as a useful and must-learn tool to navigate their path into the art world since artistic skillset and technique is remains a key component and criteria of art education in the East. Opposingly, young artists and designers who have educational backgrounds in the West are less compliant to trends and standards but with a higher focus on the social and cultural implications that AI could bring into our ever-more technological society.

Keywords: artificial intelligence, visual art, design, technology, cross-cultural study, generation z

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PREFACE

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1. INTRODUCTION

Manmade computational software has been in-so-far assisting the creative visual art industry¹ in many possible ways. Computer machines themselves have been serving as extendable canvases, multi-functional brushes, and various artistic instruments than one could think for artmaking in the traditional ages. The commonality of the computational software and tools focus on imitating the vivid functions of the artifacts in real life. In other words, they are designed to transform analog approaches into digital environments in an information age. More recently, the art world has witnessed a growth in the domain of mechanically produced art assisted by artificial intelligence technology (Cetinic & She, 2022; Kurt, 2018; McCormack et al., 2019; Schröter, 2019). What makes AI art distinctive in the visual art and design industry is that part of the mechanical reproduction of visual artwork is no longer required through the hands of human labor — the program seems solely able to meet the operator's expectation (Cetinic & She, 2022). This paves the road for a new era where technology is no longer settling only as a supportive tool but turning ambiguously into creative agents just like their human counterparts (Boden, 1998; Hertzmann, 2018; Huang & Sturm, 2021).

Since the beginning of AI technology more than 50 years ago, artists and scientists have started their quest in incorporating the technology into art making (Cetinic & She, 2022; Colton et al., 2015; Hertzmann, 2018; Kurt, 2018). To date, many of the results have set milestones. Present day artificial intelligence system is often considered as an impenetrable “black box”, whose exact way of operating remains invisible to interested parties (Yasar & Wigmore, 2023). An intermediate human-machine relationship was used to describe our relations with AI at the moment (Tao, 2022). This suggests that albeit having moved away from basic auxiliary tool in the day-to-day life, current AI still requires human guidance to certain degrees. The recent text-to-image trend emancipated the guiding process from lengthy codes and rules (Cetinic & She, 2022). From common artists to the general public, more people are invited and encouraged to test out the current developments since AI is now capable of working artistically with image output based on vast media feeds and training to facilitate the mechanics of associating a word with its representative visual output based on a simple textual command (Hertzmann, 2018).

We are fast approaching into an ever more technological society. The rise of AI technology in the field of creative visual art fostered further social and academic discussion and exploration of computer technology and artificial intelligence. The advent of a new method of making art can have different repercussions among artists and designers. Some may be excited by the potential merits of AI, while others may feel disquieted about having their skills superseded (Coeckelbergh, 2017; Colton et al., 2009; Hertzmann, 2018). This study aims to understand how the art industry is coping with

¹ In this paper, visual art is generally referred to a sum of art occupations such as painting, illustration, and various design and applied art.

rapid technology advancement by taking a specific stance at its perceived influence from the young generation of visual art and design community members.

A number of theoretical and empirical studies have been conducted to explore the production perspective to the transformation on convention and technology within cultural fields, for example, Skaggs (2022) discussed changing convention's impact on established songwriters, Bolter et al. (2006) theorized the crisis of aura in the context of new media, Huang et al. (2021) discussed the application of AI in traditional Irish music, Kosut (2014) interviewed tattoo artists for the ideological change that took place in their field, most of these studies, which did not take a key stance on the younger generation, nor did they consider non-Western culture and ideology perspectives. The younger generation born around Millenia is entering their professional domain. As a generation who matured during an unprecedented increase in information and technology (Turner, 2015), their perspectives and attitudes towards the changing world should be relevant to social interest. Grounded in Peterson and Anand's theory of the production of cultural perspective (2004) and Bourdieu's work on art fields and conventions (1993), this study endeavors to add to the line of the classic theories by taking a stance on *how the young generation of visual artists and designers perceive and respond to the impact of AI art as technological advancement?* This study also takes a more comprehensive outlook on the impact of AI by including cultural and educational differences between the East and the West as geographical regions, whereby the East refers to Eastern Asia countries and the West to Western Europe and the United States.

Grounded a mix-method approach, the raised research question is answered in both quantitative and qualitative approaches. Firstly, it collects its data through the distribution of surveys to answer *what are the major factors that are associated with attitudes of young artists and designers have towards AI art and technology.* Furthermore, semi-structured qualitative interviews were applied to deepen meaning making to further explore *how they understand the opportunities and threats of AI technology.* The collected data was analyzed through the employment of two statistical analysis methods, principal component analysis in combination with simple OLS regression analysis in SPSS. Qualitative interview data were interpreted and analyzed through phenomenological thematic analysis in ATLAS.ti.

This thesis is structured in six chapters. The following next chapter discusses the theoretical framework which supports this study on how AI art technology is positioned in cultural production perspective and its relations with artistic convention, authenticity, and art education orientations. Chapter 3 provides an overview of this study's research design in relations to its research question and sub-questions. The research approaches, instruments and analysis methods are discussed for both quantitative and qualitative methods. In chapter 4 and chapter 5, I present the results of both research methods separately with first the quantitative results and then the qualitative results. A concise summary of each method's results is discussed in its chapter. This thesis is concluded with chapter 6 where synthesized results is discussed together with its limitations.

2. THEORETICAL FRAMEWORK

The discourse surrounding the utilization of artificial intelligence in cultural production can be regarded as complex and multifaceted. In this literature review chapter, I start by drawing an outline of the production of cultural perspective theory by Peterson and Anand (2004), in close examination with Ogburn's cultural lag theory in technological development (1934) and Bourdieu's analysis of the artistic fields (1996). Under these theoretical foundations, I delve further into the discussions of authenticity and creativity in visual art, as well as an overview on the relations between generation Z and technology, different art education orientations across regions and the role of gender in approaching technology.

2.1. TECHNOLOGY AND CONVENTION IN THE PRODUCTION OF CULTURE

2.1.1. Role of technology in cultural production

Peterson and Anand's production of cultural perspective theory (2004) outlined a model of six facets (technology, law and regulation, industry structure, organization structure, occupation careers, and market) that constitutes cultural production, among which technology and technological advancement come at a prerequisite position. Historically, symbolic elements of culture usually endure a gradual change over time. However, this flow of change is sometimes interrupted by drastic changes from technology which has the power to alter the expression structure of cultural products. This theory posits that technological developments may alter the processes through which culture is created, disseminated, and consumed. Cultural production has grown more democratic as a result of the development of new technologies, permitting for greater access to cultural production and the ability for individuals to participate in the production of culture (Peterson & Anand, 2004).

Classic examples of these technological advancements were appeared in *The Printing Press As An Agent of Change* (1980), Eisenstein describes the invention and development of Gutenberg's printing press as a "revolutionary change of all forms of learnings" in Western civilization (p. 3), transforming the ways how intellectual work and information was being circulated, "until that time, every book was a manuscript" (p.6). After the invention of the printing press, the price of a book decreased by two-thirds, and the accessibility of literacy and knowledge was widely broadened. The impact of a moveable printing press as the first one-to-many communications medium existed not only culturally, but its effect was also political, sociological, philosophical, and economical (Dewar, 1998; Dittmar, 2011; Eisenstein, 1980).

A modern illustration would be the invention of photography. Photography ended a time where a practical visual record of the world was only possible through the hands of traditional painters, and, thus created much more economical ways of capturing the vivid reality of the natural world. Much work of the painters was thereafter taken over, especially from those who specialized in

portraits (Hertzmann, 2018). Photography also brought out the optical unconscious, a term that was coined by German art critic Walter Benjamin in his essay *A Short History of Photography* (1972). He emphasized that the invention of photography fundamentally transformed the way humans perceive the world. Many things that were overlooked by the human eyes before were now well-captured unprecedently. Photography's transformative impact further touched upon art experience, politics, and history, as well as an artifact that helps to preserve memory and to construct identity (Benjamin, 1972).

Another notable contemporary example is the proliferation of the internet and various online media platforms, which can be observed as a result from the increased accessibility of digital tools and platforms that have emerged in recent decades. Examples provided here show how technological advancement has the substantial power to alter the way how the production of culture is realized, and through which the industry structure could be changed and extended to the public's lifestyle and perception of culture.

Over the past decades, a growing number of computer-assisted creative programs at the intersection of design, art, and technology have entered the horizon in visual art industry, leading to an acceleration in the recognition, discussion, and incorporation of (Cetinic & She, 2022; Kurt, 2018; Tao, 2022). The digitization of artistic work environment, for example, the Adobe Cloud package provides comprehensive tools and functions for artists to work in a completely digital manner and with the increasing number of users of its software service, cultivated the transformation of artistic styles and conventions in a new era, and provided new ways of cultural consumption (Hertzmann, 2018). In recent years, a salient growth of AI painting software and programs have been developed (Cetinic & She, 2022) in the field of visual art. Established companies like Adobe also introduced their new generative tool Firefly recently (*AI Art Generator – Adobe Firefly*, 2023). Microsoft as well launched their AI office assistant Microsoft 365 Copilot (Spataro, 2023), along with other independent platforms who have also been working on the development of AI design programs (Tao, 2022). What makes AI art software distinctive from other technological tool is that part of the production of visual artwork is no longer required through the hands of human labor. In his article, Tao (2022) explained three types of human-machine relationships, the primary user-tool relationship, the intermediate relationship where humans guide the machine, and the superior relationship of human-machine separation. The primary relationship is widely seen in current day-to-day life and the working environment where machine serves as an auxiliary tool to human-made production. The superior relationship, on the contrary, means that a machine is capable of its operation independently without guidance from humans. The superior relationship is currently not seen nor achieved yet, however, it is believed and speculated by many (Boden, 1998; Colton et al., 2015; Tao, 2022). The intermediate relationship, which is the main focus of this paper, refers to human-guiding-machine, similar to teacher-supervising-student. The current AI art technology is closest to the intermediate relationship, according to Tao (2022). It sets itself apart from previous digital art tools primarily

because its generation process is now independent of human control. Unlike before, AI art software works through an automated generation process that requires only descriptive input from humans. Through massive machine learning of data and examples, AI learns and simulates human art content and style. This technological breakthrough enables the visual art industry to explore new possibilities for its approach to artistic creation. This also means that AI has opened a pathway for the public to engage in the process of art creation, including those who were not trained professionally. It offers more people a unique opportunity to participate in and appreciate visual art which was not possible for them before. In the meantime, AI art also embodies its unique characteristic that is other-than-human and therefore creates new aesthetic styles and art logic that are in turn, affecting human aesthetic preferences and perceptions of art (Tao, 2022).

Attitudes on the relationship between art and technology has always been a debatable topic in sociological discussions. Walter Benjamin points out that after the invention of photography, art, and technology for the first time found their common ground and mechanism through *reproduction* (Benjamin, 1935). Now with the integration of AI technology, art will receive its second industrialization, “from mechanical reproduction of art to automatic reproduction” (Tao, 2022, p. 121). Though Benjamin deems the loss of aura in mechanical reproduced art, he believes that technology in art is progressive as it is capable of liberate art from the control of religion and class repression to be democratized and popularized amongst all public (Benjamin, 1935). However, unlike Benjamin’s optimism, Horkheimer and Adorno sees the integration of technology and art as “the industrialization of art” (Tao, 2022, p. 121). They see the development of this industrialization to be perpetuated in human cognitive and aesthetical experience with art. Defending the notion of “schema”, a concept introduced by Immanuel Kant to describe the bridging between concept and sensory perception, Adorno thinks that industrialized art will eventually sabotage schemata activity of the subject, of the individuals. By this, they believe that the integration of technology in art can replace the role of individuality and subjectivity in the reception of art and culture, consolidating social alienation with technical rationality. In addition, they heavily criticized that instrumentality of technology represents domination of a kind, therefore the use of technology is not as neutral as one might like to think (Feenberg, 1996). Taking a milder stance from the “technophobic” social critics, there was also another approach towards technology which Feenberg (1996) called *design critique*. With this, Feenberg suggests that regulations and disciplinary practice of technology is shaped by social interest and cultural values. *Design critique* sees technology also as an agent within the societal network that is changeable by collective interest, and less of a pawn to the dominant class.

French philosopher Paul Valery posited that society must be ready for the change and transformation that innovation will bring about in the technique of arts, the form of art, and perhaps even the very notion of art (Paul Valery, as cited in Benjamin, 1935). The possible change in the notion and the making of art affects the creative industries, including the culture producers, the visual artists and designers. In the view of Peterson and Anand, AI technology is functioning as a

mechanism that is changing the convention in the visual art field by introducing a new way of creating art and stimulating new definition of art. Faced with the changes brought by the development of technology in their respective fields, visual artists and designers are confronted with new opportunities and challenges, pressing them to respond.

2.1.2. The artistic fields, conventions, and cultural lag

In the “field of cultural production”(1993), French sociologist Pierre Bourdieu introduced the concept of the “field” in cultural production. Although Bourdieu did not provide a precise definition of it (Alexander, 2020), it is to be understood that a field is a “social space or arena in which actors vie for their position in” (p. 65) and they compete for various types of rewards such as resources, recognition or sales. Each field has its own set of rules, values, and practices conditioned by class relations, interests, goals, and strategies. In his work, Bourdieu also suggested a two-pole landscape in the artistic fields, the autonomous pole, and the heteronomous pole. The autonomous pole is closely related to “art for art’s sake”, where the scale of artistic production is restricted and shows disinterest in economic value. Its members typically seek prestige, self-esteem, and symbolic status through recognition within circles who share similar aesthetic and ideological preferences; while in the larger-in-scale heteronomous side, also known as the commercial pole, art is interpenetrated by other fields and it emphasizes how well its products meet the markets’ needs, in other words, how much economical capital it brings in (Alexander, 2020; Skaggs, 2022).

In the heteronomous culture field, the style tends to be homogenous and repetitive which responds to market need, organizational bureaucracy, and the choice of the gatekeepers as they show the industry and its member what established conventions are and ways to attain successful economic achievement (Skaggs, 2022). Conventions, as Howard Becker (1984) points out, set “the rule of the game” in the art industry. They on the one hand constrain artists in terms of the work they produce, but on the other hand, make it easier for artists to align themselves to what has been widely acknowledged and accepted in the field. And often, artists in heteronomous fields tend to stay close to the conventional circle as it requires less effort. At the same time, artists have to stay up-to-date and strategically accommodate themselves to the latest changes of convention, trends and aesthetic styles to stay relevant in the field, although sometimes these conventions contradict their personal taste or preference (Skaggs, 2022).

The emergence of artificial intelligence art opens a new chapter in the change of conventions in visual art, both the autonomous and the commercial fields. Typically, actors in the cultural industry attain their recognition and value through differentiation (Becker, 1984), and one of the many ways that artists use to identify and brand themselves is through content or aesthetic innovation (Wijnberg & Gemser, 2000). By setting up and persisting on a personal style, an artist is more recognizable in terms of who they are, what they do, and what makes them stand out (Skaggs, 2022). However, this

symbolic structure may face a challenge from the AI. The status quo of current AI art technology relies heavily on the training of recognizing and learning from existing datasets and the mimicry of human-made aesthetics, styles, and artifacts (McCormack et al., 2019). This means that the fast-advancing AI algorithms and the constant process of deep-learning optimize AI's speed and reproductive power each time a user operates the model to train and generate works. Mechanically, AI technology can take much less time and cost to produce a work of aesthetic and content that imitates and alters the industry's convention and trend. Although the innovative and creative ability of AI art is yet to be discussed, its speedy reproduction of styles has already alerted artists and designers about a potential risk of being replaced in the job market.

Chicago sociologist William F. Ogburn (1957) introduced the theory of *cultural lag* to describe a possible defer in the social belief, value, and norms in the context of a fast-developing material world. Ogburn believes that such mismatch between the material and nonmaterial realm of the society can lead to conflicts and disparities on aspects of societal activities. An problematic example given was the lagged policy making in forestry conservation compared to the exploitation of wood products manufacturing from the material culture (Kim & Solovey, 2022). In the case of AI, it was mentioned by Walton and Nayak (2021) that the modes of production, consumption and exchange in our current society has been modified to adapt to a cognitive capitalism through commodifying cognitive labor, data, and information. Institutional policies are therefore needed to protect labor and trade to mitigate AI's impact on employment issue and inequality in technological availability and accessibility. As Ogburn pointed out, technological unemployment is another consequence of the advancing material culture. The structure of organization of business fostered cultural lag further as adequate support system is usually not in place when unemployment happens as aftermath of technological development (Kim & Solovey, 2022). In his view, society need to urge fuller solution to ensure social support under "the cyclical and seasonal nature of industrial life" (Ogburn, as cited in Kim & Solovey, p.4).

2.2. ASSESSING AUTHENTICITY AND CREATIVITY OF AI ART

A key element to think about which differentiates human-made artwork from machine-generated artwork is the fact that machines can only produce art based on learning from prior examples (McCormack et al., 2019). In contrast, human-made art derives from many more possibilities: the appreciation of nature, the commemoration of memory, the sound of living surrounding, or narratives from a personal relationship. It is often criticized that AI algorithms, although named "intelligence", are notably incompetent to human-level artistic creativity which is drawn from an emotional faculty, although some argue that the emotional elements of AI art are accessible from a perceptive translation of the audience (Kurt, 2018). In other words, AI is emotionless and is so far never exposed to, nor cognitively capable of understanding emotions, or

possessing any emotional intention (McCormack et al., 2019). This seemingly makes AI generated art vulnerable in a discussion of artistic “aura” and authenticity (Huang et al., 2021). Art authenticity has multiple layers of meaning, Newman (2016) points out that *authenticity* in art can refer to the provenance of a work, namely if it is not a fake or a forgery; it can also refer to the artist’s source of motives, if the idea was genuine and pure. Due to the historical apprehension of technology in the discourse of art (Hertzmann, 2018), the evaluation of authenticity in AI-generated art deserves more attention. In this paper, both meanings of authenticity will be discussed.

2.2.1. *The originality of a work of AI*

It is common sense that human value an original work of art more than its duplicates although they appear to be identical. Walter Benjamin named it the diminishing of *aura*. In his well-known essay *The Work of Art in the Age of Mechanical Reproduction* (1935), Benjamin links *aura* to a “time and space” characteristic that is attributed in a unique work of art which possess the ability of evoking audiences’ reverence towards the sense of distance between them and the artwork (Bolter et al., 2006). Benjamin made an analogy with our appreciation of the natural objects, in his view, what we sense and feel at a specific natural site, at a specific time, is comparable to that of what we experience in front of an authentic artwork. The embodied quality of unique moment and history within an artwork — the *aura* — is absent in its perfectly reproduced copies.

In October 2018, an AI-generated painting titled *Portrait of Edmond Belamy* by artist group Obvious made its headline by an auction sale for \$432,500 (McCormack et al., 2019). It is very soon pointed out that the so-called artist group may not even suffice its title — the used code and dataset were largely from another non-benefiting AI artist Robbie Barrat (Elgammal, 2018). In March 2023, an AI-generated “promptography²” titled *The Electrician* won the Sony World Photography Awards in creative photo category (Parshall, 2023). The winner soon turned down the award and criticized that current photography competitions are not prepared for an AI image’s entry and his work shall play the role of a conversation-opener for the discussion of photographic authenticity and its social implications. The first case indicates a struggle with the ascription of ownership of technology and thus the work of art, while the second case displays a philosophical consideration to the originality of a work of art that does not come from a human entity.

To comment on authenticity and originality of AI artwork, it is worth knowing how AI functions. The first acceleration of use of AI in the field of visual art was seen after Generative Adversarial Networks (GANs) was introduced (Cetinic & She, 2022). GANs operates with two sections, the generator and the discriminator. The generator’s goal is to capture examples and generate

² Promptography came from the word prompt and photography. “Prompt” was used in photography practice to instruct subject of a photograph to elicit emotion and reactions. The AI-sense of “prompt” means to guide a machine. Promptography therefore means a type of photography that is prompted by the human and produced by a machine.

realistic image, the discriminator identifies fake generated-image and real original samples. The goal of such training model wants to make sure that image output is closest to the discriminator and far from the generator — in other words, to make them appear as realistic and convincing as possible. Massive digitization that took place in the past decades along the development of information age resulted in a large online database of art collections. It incubated the success of current text-to-image AI art model such as DALL-E 2. It is confirmed that however these neural network models output work that is new, never seen, it is questionable who owns the authorship. Additionally, McCormack commented that works that came out from the same algorithms potentially share similar and repetitive pattern and character, and thus considered generic (McCormack et al., 2019). Although repetition is also seen in human artworks, the latter is more often considered a personal hallmark and identification for symbolic recognition.

2.2.2. *The intention of a work of AI*

The concept of intentionality, often connected with the notion of creativity, is one of the themes related with AI technology and art that researchers considered in the field of art, focusing on whether *AI art* and *AI algorithms* can be considered as creative (Boden, 1998; Coeckelbergh, 2017; Colton et al., 2009; Hertzmann, 2018; Kurt, 2018; McCormack & d’Inverno, 2012)? The first question raises concerns about whether AI generated artworks should be acknowledged as conceptually or visually creative. The second question delves into the debate of whether AI algorithm itself should be recognized as a creative entity. It tries to explore whether AI’s art-making process can be attributed to its own creative thinking.

American psychologist and expert on creativity and innovative learning, Keith Sawyer, as cited in Kurt (2018, p.23-24) lists out three main elements of creativity. For the first, being creative requires a fundamental quality of being “new, novel and original”. Margaret Boden, prominent scholar in the field of AI creativity study, endorses his definition by adding that creativity shows unpredictability (Boden, 1998). Furthermore, she distinguished between psychological creativity (P-creativity) and historical creativity (H-creativity). The H-creativity stands for creative idea that is never seen human history while the P-creativity means a novel idea that is completely new to a person, regardless of if others have had the idea before. Sawyer’s second element is that “creativity is a combination”. If a person manages to combine knowledge or concepts that this individual has known previously into something unfamiliar but valuable, it should be deemed creative. Lastly, Sawyer thinks that “creativity is expressed in the world”. This implies that a creative idea should be perceivable and understandable beyond the mind of its originator. In addition, Sawyer also introduces the sociocultural value of creativity. In his view, creativity in social and cultural system should refer to a socially valuable product, that is solely the outcome, and independent from the process of making or the actor of producing. AI-generated artwork, in this regard, is hence considered as creative

outputs: they are new, they are generated based on previous examples and data, and their existence is perceptible in our society. Additionally, the AI generation output still requires a human prompt description which involves the co-operation from human creativity. So far with the support from both Sawyer and Boden's theorization, I come to a tentative conclusion to the first question mentioned before, that AI-generated *artwork*, regardless of its process of making, displays certain level of creativity although not yet comparable to that of pure human-art creativity (Kurt, 2018).

To answer the second question, if AI algorithm should be described as creative entity, the debate around AI technology and its application in creative sector has taken into account the possibility of any non-human figure containing intentionality, authorship, and thus authenticity. The question that if one should ascribe human-level agency in technology has always been intricate. According to Coeckelbergh (2017), if to take creativity from a modernist and expressivist standpoint, machine art fails to make the link between the outcome and the art maker's authentic self, which constitutes the most important part of authenticity — the origin of an emotion, or a will to express — as mentioned before, is non-existing within a machine for that it is unconscious (again a debatable concept in Coeckelbergh's notation). Opinions also differ heavily on the debate of authorship in technologies (Huang & Sturm, 2021). It is a perplexing question for many to make sense if AI should be seen as the author of the work they produce. Scholars such as Coeckelbergh (2017) argue that AI algorithms should be attributed with full authorship credit rather than its programmer. Critics of such a claim often focus on whether authorship can be separated from a human body. Schröter (2019), for example, emphasizes on the role of mortality in assessing authorship. In his view, work produced by the AI typically connects artistic knowledge with a false body and that should be deemed a forgery. By this, Schröter values the position of any mortal, human artist in the flow of history, which provides them with uniqueness and value. Eclectically, some exactly value the absence of the "human-level intentionality" in the work of AI and see it as the precise characteristic of AI art, and hence the "aura" in an information age (Kurt, 2018).

Other socio-cultural viewpoint from supporters who carries an optimistic view about AI technology focuses on the societal merit that creativity could bring forward and believes that human-level creativity is possible to be investigated and simulated (Colton et al., 2009; Huang & Sturm, 2021). Meanwhile opponents (McCormack et al., 2019) reject the idea since they see AI art as outcome of mechanical device rather than human intelligence, often comparable of those who rejected photography as art. "If photography is allowed to supplement art in some of its functions, it will soon supplant or corrupt it altogether", said Charles Baudelaire (as cited in Hertzmann, 2018, p.4). To sum up, the ongoing discussion around the authenticity and creativity in theories of artificial intelligence and its practice remains debatable. Literature discussed above tends to agree that AI art output can be credited creativity to a certain level, although it needs a more nuanced and intricate viewpoint to problematize its mechanics of mass learning and copying other artists' style. On the other hand,

whether AI algorithm should be seen as a creative and authentic entity who displays authorship remains debatable and requires further discussion.

2.3. YOUNG PROFESSIONALS AND ART EDUCATION

Among today's young professionals, many of them are considered Generation Z. Gen Z commonly refers to a generational cohort born between the mid-90s to late mid-2000 (Turner, 2015). A distinctive feature about the Generation Z compared to their predecessors, the Generation X and Y, is that they are considered "digital natives" (Turner, 2015, p. 104), born and raised in a time that the acceleration of technology is unprecedented, which in turn, shapes their generational traits (Bulut & Maraba, 2021). They are more accustomed and savvy to a world that is highly connected through the Internet. They display strong technological ability as they were exposed to technology development at an early age with high usage frequency, which led them to a growing individualistic thinking, low tolerance of slowness and inefficacy, high visual-culture-engagement, and high socialization ability (Bulut & Maraba, 2021). Therefore, the bond between this generation and new technology is commonly considered natural, proficient, and comfortable. Albeit their technology-driven lifestyle, William Ogburn stressed that it is crucial for the young generation to be informed about the potential risks and impact from technology to alleviate the risks of unemployment. He deemed that the younger generations need to incorporate this knowledge to their better adjustment to social implications that technology can bring about (Kim & Solovey, 2022).

Gen Z is also reported to be individualistic in environments. They are money-driven, opportunity-driven and they give importance to self-development. At the same time, they also display high level of ethical values of the occupation and the company they work for, including individual diversity and social implications (Bulut & Maraba, 2021). However, the assessment could be more nuanced if situated in a non-Western context. As literature reviewed, the geographical east, especially the East Asia has its regional philosophy deeply rooted in Confucianism (Baumann et al., 2016) where teachers and people high in social-hierarchy hold substantial power over students to have them obeyed and disciplined. This has been remarkably reflected in a subsequential strong work ethics among the Asians compared to Westerners.

On another count, art education in the West and the East displays certain divergence, too. In art education, *creativity* and *authenticity* are internationally cherished and promoted as prominent characters of art students' competency qualities (Gude, 2013). However, the stress on other aspect such as the mastery of artistic *techniques* appears to be less unified across different countries and cultures (Lowry & Wolf, 1988). In their essay assessing China's art education traits in comparison of that in the West, Lowry and Wolf (1988) stated that the difference in art education orientation between the West and the East can be broadly categorized as the difference in the evaluation between individual expressions and traditions or techniques.

Since the late nineteenth century, western art education called to renovate educational approach, traditional characteristics of art was thereafter challenged by the modernist view to renounce the pursuit of clear representation, beautiful aesthetics and well executed skillset, echoed by a trend to lower its emphasis on craft component and the mastery of technique (Gardner, 1990; Hanquinet et al., 2014; Lowry & Wolf, 1988). Art education thereafter continued to grow into gate of self-expression and creativity and ceased to be “scholastic subject” or “a craft to be mastered” (Gardner, 1990, p. 35). On the other hand, in the East, particularly in countries like China and Japan, art education has traditionally focused on the mastery of traditional techniques and styles with the goal of achieving technical proficiency (Yue, 2009). The emphasis is on tradition, technique and skill. Lowry and Wolf (1988) discussed three main differences compared to the west were marked down: the structure of art education in China is centralized; morality and political goals are strongly promoted and last, the method taught stress hard on skill-building and techniques.

To date, some have questioned such paradigmatic dualism of the West versus the East in educational approach under the effect of more globalized approach. Additionally, internationalization also leads to an increasing trend of transnational students across the world for optimizing and enhancing quality in higher education and the exchange of culture (Fabricius et al., 2017), it is not to be neglected that a person could receive education from both paradigms and thus under both impacts. Insights of the different modes of art education should help to understand if or not, current generation of art students and young professionals would like to seize this technological advancement as opportunities or threats in their career orientation.

3. METHOD

Based on the research aim of exploring how younger generation of visual artists and designers perceive and respond to the impact of AI art as technological advancement, I focused on two sub-questions that guided the research further. First, *what are the major factors that are associated with attitude towards their AI art and technology?* Second, *how do they understand the opportunities and threats of AI technology?* The design of this research responded to the two sub-questions that have been raised. To answer the questions fully, I conducted this study in a two-phase approach where the first question was explained quantitatively, and the second phase dug further in a qualitative approach.

To answer my first sub-question, I raised four hypotheses. Each hypothesis proposes the predictive power of one aspect of the survey respondents in relation to their attitudes towards AI technology. The variables used in the hypotheses are their socioeconomic status, their field of expertise (divided into two ways of categorization), and the regions where they accomplished their study. Below I list the hypotheses³.

H1: Socioeconomic status will affect artists' perceptions of AI art technology.

H2: The difference of being in autonomous or heteronomous orientated educational expertise will affect artists' perceptions of AI art technology.

H3: The level of computational skills required in artists' majors of expertise will affect their perceptions of AI art technology.

H4: Under the division of the West and the East, where artists attended art education will affect their perceptions of AI art technology.

Thereafter, I answered the second sub-question by using findings that emerged in the first quantitative phase as a base and tried to elicit what the specific drive was behind those factors concerning why their perception of computer-generated art technology differs from each other using a qualitative semi-structured interviews methodology. In the following sections of this chapter, I will elaborate on how this study was designed in detail and what the main instruments and analysis methods were utilized.

3.1. RESEARCH DESIGN AND INSTRUMENTS

This study took a two-phase, mixed-method approach to answer its research question. I intended to utilize mixed-method techniques by combining quantitative and qualitative methodologies for data collection and analysis (Sandelowski, 2000). I designed a survey based on reviewed literature to firstly map out participants' attitudes on AI art in relation to different aspects of their backgrounds.

³ Null hypothesis for all the four alternative hypotheses states that there no statistically significant relationship or association between the four selected independent variables and the dependent variable.

Then I conducted semi-structured interviews with participants enlightened by the results presented by the quantitative analysis, to further understand lived experience in the formation of their attitudes towards AI art technology. I believe that such an approach could help to expand the scope of insights for this study on a methodological level, to make use of both data collection and analysis approaches to contribute to a fuller picture of the research background and a more comprehensive understanding of the phenomena being studied (Graham, 2005). Here I will explain the design rationale.

Figure 3.1

Hybrid, combination, or mixed-method design templates.⁴

Templates	Qualitative/Quantitative Relationship: Priority & Temporality	Use of Qualitative Adjunct:	Use of Quantitative Adjunct:
Template #1	QUAL>quan		-measured description -validation -formal generalization
Or			
Template #1a	QUAL+quan		
Template #2	QUAN>qual	-explanation -validation	
Or			
Template #2a	QUAN+qual		
Template #3	quan>QUAL		-guide purposeful sampling -focus information-seeking -suggest analytic paths
Template #4	Qual>QUAN	-generate items, variables -generate hypotheses	
Template #5		-explanation -validation -generate items, variables -generate hypotheses	-measured description -validation -formal generalization -guide purposeful sampling -focus information-seeking -suggest analytic paths
Template #6	Qual>Quan>Qual		-instrumental bridge
Template #7	Quan>Qual>Quan	-fieldwork bridge	

¹Constructed from information in Miles & Huberman (1994), Morgan (1998), Morse (1991), and Tashakkori & Teddlie (1998).

> indicates sequential relationship

CAPITALS indicate priority

+ indicates concurrent relationship

Arrows suggest a rolling wave

On a technical level, I combined quantitative survey and qualitative interview methods in a sequential approach, where quantitative surveys were distributed first towards a more general scope of sample and thereafter followed by qualitative semi-structured interviews which narrowed down to specific individual cases to elicit more in-depth understanding. This aligns with what Greene (1989) introduced in her mix-method evaluation paper as a *development* intent that “seeks to use the results

⁴ Note. Reprinted from “Combining Qualitative and Quantitative Sampling, Data Collection, and Analysis Techniques in Mixed-Method Studies”, by Sandelowski, M., 2000, *Research in Nursing & Health*, 23(3), p.249.

from one method to help develop or inform the other method” (Greene et al., 1989, p. 259). It is also important to note that the priority and the main emphasis of this study is on the qualitative part.

The Data collection process started from the online and off-line distribution of digital quantitative surveys in art academies and young artist communities’ networks in both China and the West, mainly the Netherlands, the UK, and the USA, targeting art/design-majored students and young professionals whose age under 30 years old. There was no specific requirement for other socio-economic aspects of the participants, such as gender, income, or working experience.

The survey consisted of 47 items that focused on four sections of study interest: *Personal Background Data*, *Artistic Work Approach*, *Opinions on AI art*, and *Attitudes towards AI art technology’s impact*. Besides the *Socio-economic Data*, all other 30 items were measured on a 5-point Likert scale, ranging from “disagree” to “agree” Questions are listed out based on the reviewed concepts and assumptions, for example, to test the relationship between a person’s education orientation received and his/her attitudes towards AI technology. Its main goal is to scout relations and associations between the different areas of the survey and perceptions of AI among young artists in both regions. The findings thereafter would assist the construction of interview guide. In practice, I sent out online surveys in both English and Chinese written language using one of the most common Chinese online survey platforms wenjuanxing (wjx.cn). Two reasons behind it were first, two-language minimizes the potential loss of participation in China due to language barriers. Second, some webpages may not be opened in China due to internet regulation therefore I used a Chinese platform to be sure that the survey is reachable by all internet protocols. The two surveys have identical structure and question sets and their answers were merged in the end for statistical analysis.

The second half of the study was carried out in the form of qualitative semi-structured interviews, using a phenomenological approach. The use of qualitative interviews is the most common method for qualitative data collection (Taylor, 2005), and it can effectively help to elicit in-depth verbal expression in terms of the artists’ complex thoughts, motivation, and approach to dealing with professional choices and career concerns (Kallio et al., 2016). A phenomenological interpretive approach captures the common meaning and features from the research participant’s lived experience (Starks & Brown Trinidad, 2007). Based on the findings from the surveys, I constructed an interview guide that was used for nine semi-structured interviews. The interviewee group consisted of participants of the survey phase who showed further interest in this study and contacted me voluntarily or people who did not participate in the survey but fit my sample criteria and were interested in participating. During the interview, the focus lay on stimulating in-depth personal understanding experientially to map out their subjective and experience-based attitudes.

This study pays high attention to ethical considerations. All participation in the two parts of this study was given voluntarily. In its design, this study made sure to minimize potential harm to the participants in the way of constructing its questions for both the survey and interview. In both introductions of the survey and interview, I made sure that all participants confirmed their full consent

to the use of their data in this study. They were properly informed that collected data will be kept confidential for research purposes only and will not be shared with any other party. To protect interview participants' privacy, I communicated with them before the interviews started that the use of their personal information will be kept anonymous using pseudo names. It was also mentioned at the beginning of each interview that they have the right to withdraw or ask to leave out data that they wish not to be used or shared. Contact information was provided to both survey and interview participants for any questions or requests that may occur during, or after the research.

3.2. SAMPLING

The sampling strategy is often a key determinant in distinguishing qualitative from quantitative approaches. It is commonly agreed that probabilistic sampling methods like random sampling can provide nomothetic knowledge of the study population whereas more purposive sampling deals with more individual and informative cases (Sandelowski, 2000). In this study case, the two sampling techniques were combined. According to Sandelowski (2000)'s mix-method design template 3 (p. 249), quantitative sampling precedes qualitative sampling where the priority emphasis is on the latter. Although such a combined method (stratified purposeful sampling) is conceived as statistically weak and non-representative, it is however informationally representative because the gathered variable in each selected case is meaningful exactly to the study's interest.

A probabilistic stratified random sampling method (Bryman, 2016) was applied when looking for survey respondents. By defining young generation visual artists, the goal was to look for either art academy students or newly established artists that are specialized in the field of visual art and design (including educational studies like Fine Arts, Illustration, Paintings, and Visual Communication, etc). The criteria for being a valid respondent should comply with the age range between 18 and 30, either being an art student or someone who works in the artistic sector and has participated in or thought about the AI art phenomenon. The advertisement of the survey was sent out through the internet and social media platforms in both China and Western countries, printed posters/notes in physical space were put up in art academies in the Netherlands, and also benefited from networking with members of various art academics. During the collection of quantitative data, I was introduced to an AI art-related forum that was organized at two major universities in Beijing which boosted the collection speed. In the end, 111 valid answers were collected from 13 provinces in China and five other countries that are mainly located in the West (the Netherlands, France, Italy, the UK, and the USA, see more specifications in Results).

Based on the quantitative analysis results, I combined purposive sampling and volunteer sampling as non-probabilistic sampling methods for the second half of the study. Specifically, I reached out to individuals who showed interest in the study, meanwhile, I was also contacted by survey participants who expressed interest in being interviewed for the follow-up study. The

participants were selected based on the following criteria: (1) under 30 years old; (2) having a background in art or design, or currently working in the art and design field; (3) being familiar with AI art and technology, preferably with a strong interest in discussing its implications; and (4) the number of participants of each region of study should be even.

As shown in **Table 3.2**, the composition of the final participant group consists of 8 artists and designers. At the time of the research, 3 participants were (self-) employed, four were studying, and one participant was taking her gap year while searching for her next step. Five of them identify themselves as female, two as male and one person as non-binary. The ages of the participants range from 20-29. Five of the participants came from China, three from the Netherlands. Four of them had study experience in a Western university/academy, and the other four studied or is studying in China. Their expertise varies from painting and illustration to design subjects such as game design and graphic design (more information in Appendix D).

Table 3.2

Interviewee information

Name	Gender	Age	Major/profession	Country of study	Working state
Rena	Female	24	Game design (MA)	CN/USA	Student
Katy	Female	26	Illustration/Graphic design (MA)	CN/NL	Employed
Stefan	Male	26	Graphic design (BA)	NL	Employed
Vera	Non-binary	23	Illustration (BA)	NL	Student
Richard	Male	29	Graphic design (BA)	NL	Freelancer
Penn	Female	20	Environmental design (BA)	CN	Student
Yu	Female	23	Visual communication (MA)	CN	Student
Ji	Female	28	Painting/Illustration (BA)	CN	Unemployed

3.3. OPERATIONALIZATION

3.3.1. Survey measurement

The design of the survey was divided into two parts and was following the hypotheses that were raised at the beginning of this chapter. In the first part of the survey, questions were set to collect personal background information such as age, gender, family background, education attainment, and income. Socio-economic variables are chosen in this study as they often show sociological relevance in prominent theories of cultural production and consumption (Alexander, 2020; Bourdieu, 1984). These data were collected using multiple choices questions and open questions. In the second part, I delved into three overarching themes, assessing respondents' *Artistic Work Approach*, *Opinions on AI Art*, and *Attitudes Towards AI Art Technology*. Answers to these themes were less possible to be measured directly using the same approach as part one as they are often less clearly defined. Within each theme, I showed a variety of statements in which the participants were asked to rate how much they agree with them on a Likert-scale standard. Likert-scale questionnaires are the most common-

seen data collection instrument for attitudes and motivation as they grant a rich amount of data for the researcher while taking up the least effort from the respondents (Nemoto & Beglar, 2014). By offering multiple statements that covered possible aspects of a respondent's experience, I aimed to gather data that were more complicated to be captured with a single question. In *Artistic Work Approach*, I primarily emphasized work style in terms of traditional or digital tools, as well as their education directions, and how much of their previous experience had extended into work habits. When assessing participants' *Opinions on AI Art* and their *Attitudes Towards AI Art Technology*, they were provided with statements that explored various possible emotions and values associated with the topic. With opinions on AI art, participants were asked to rate AI artworks' creativity and authenticity on a general level. Under the theme of attitudes about AI technology, I designed statements that go beyond a binary division between the optimistic and the pessimistic. Instead, it measures emotions that are more sophisticated such as doubtful, indifferent, confident, and anxious.

3.3.2. Interview structure

The primary structure of the interviews relied on the interview guide. The formulation of a semi-structured interview guide functions as a tool for data collection purposes (Kallio et al., 2016). Since the quantitative survey has scouted preliminary associations, the goal of the interview guide is to set off from survey findings and move a step forward to enrich the understanding of interviewees' personal experiences and their subjective opinions.

In a semi-structured interview setup, questions outlined in the interview guide are considered loose, providing dialogical space and the possibility of rearranging the order of the questions based on the interviewee's answers (Kallio et al., 2016). Following Kallio's (2016) proposed structure, I formulated my interview guide with two levels of questions that belong to three overarching themes, interviewees' experience in art education, their personal experience with artistic creation, and their thought on AI art technology. Art education background concerning both study major and where the respondents attended their education showed their relevance in survey results and therefore was included in the interviews, too. I also want to understand how interviewees have been approaching their artistic creation, namely what tools and methods they prefer, where they put the highest value in creating artwork and why, and whether they actively keep up with new technology in artistic fields. These questions aimed to explore the interviewee's personal preference in art creation in general and laid a foundation for understanding how they perceive AI technology in the artistic field. When talking about AI technology, I aimed to ask questions that cover their understanding of authenticity in AI and AI's social implications from personal perspective. Under each theme, I set firstly broad and open-ended questions, and thereafter the follow-up questions. During the actual interviews, extended questions on interesting topics were also improvised. To each interviewee, questions were not asked

exactly in the same order and sometimes there are additional questions that are related to each interviewee's condition.

Besides these main themes, interviewees received different questions that touched upon their study major, profession, motivation for choosing what they pursue, peer opinions, and their expectations of the visual art industry. These questions were more improvised to each interviewee's personal circumstance and therefore varied.

3.4. DATA ANALYSIS

3.4.1 Survey data analysis

To effectively analyze the survey data, a few steps were taken before I continued the analyses. I firstly computed principal component factor analysis to narrow down and group scores acquired in part two of the survey. I performed factor analyses for question set 18 to 23 and question set 35 to 47. Data from these two sets of questions were thereafter summarized into smaller sets of indices which still contain most information from the large set. In this way, they were prepared as variables used for regression analysis later. These two sets are referred as the *Artistic Work Approaches* and *Attitudes toward AI Art*. I operated through Dimension Reduction- Factor in SPSS to congregate data that belongs to each umbrella topic and set Eigenvalue at 1, selected Varimax for the rotation method, and saved the output scores as new variables in the same dataset for regression analysis. In this way, I aim to first reduce the dimensions of attitudes of the three proposed categories collected from the survey into some shared patterns (Kim et al., 1978).

Data collected in the variable *country of education* came from open questions that were not quantifiable, so I re-coded them into a new variable which divided countries into two categories, the East and the West, which were consistent with the geographical division mentioned in reviewed literature. For data acquired from participants' field of expertise/profession, the raw data presented a list of up to nine subjects that is relevant to art and design. Similarly, to be able to compare between different types of professions, where some of them have small data sizes, I decided to group them into three labels, the *autonomous*, the *heteronomous* a category *in-between*, and computed as a new variable. During the second round of analysis, I chose to group professions based on how much computational skills are required or involved professionally. Again, I divided them into three groups and re-coded them into a new variable which contains the *manual*, the *mix of manual and computational*, and *highly computational*.

After all steps were completed, I conducted two simple OLS regression analyses to test the effect that each selected independent variable has on *Concerned* and *Excited* attitudes towards AI art technology. The selection of independent variables was based on the research hypotheses. In addition, several control variables were selected. The original answers to Gender contained multiple categorical values, female, male, and non-binary, therefore I computed dummy variables to be used in regression

analyses. Age as a numeric variable was also selected as a control variable which ranges from 18 to 30. Highest level of education received was measured in six categories for both the participant and their parents: less than high school degree; high school degree or equivalent; some college but no degree; associate degree; bachelor's degree; graduate degree and higher. All other descriptive statistics are shown in Table 2 in the next chapter.

3.4.2 Interview content analysis

The process of transcribing interview was largely assisted by “Whisper”, an artificial intelligence program that was developed by the OpenAI company. I ran the scripts in Google Colaboratory where AI helped transcribing the recordings from audio to text files. The program deletes source file after transcribing is finished. To make sure data are fully anonymous, I removed private information that contains identities from the transcription and gave each interviewee a pseudo name. Afterwards, I adjusted the auto-generated text to guarantee its accuracy.

The analysis process took place in ATLAS.ti, a qualitative content analysis software where I coded all the data and looked for common expressions and themes that arose from them (Starks & Brown Trinidad, 2007). A combination of thematic analysis and interpretive phenomenological analysis approach was applied to the analysis of the data.

Thematic analysis is a systematic approach that identifies themes that repeatedly appear in data (Clarke et al., 2015) while phenomenological analysis focuses specifically on “how meaning is created through embodied perception” (Starks & Brown Trinidad, 2007, p. 1373). Combining the two approaches, I followed the order of familiarizing, initial coding, categorizing, re-examining and comparing, linking to knowledge, and finalizing the themes (Clarke et al., 2015; Vaismoradi et al., 2016). Through de-puzzling, writing, and re-writing the story of the interviewees, I distilled meanings and themes that were captured in the interviewees' narrations (see code list in Appendix E).

4. QUANTITATIVE RESULTS

4.1. DESCRIPTIVE STATISTICS

Table 4.1 shows demographic information of 111 participants who contributed to the survey. The youngest participant was 17 years old and the oldest was 30, and the average age of the sample is 24,9 years old. The majority of the study sample is female (76%) and has college degree and above (84%). Most of the participants have graduated (77%), and about 41% of them were employed at the time of the survey. Most participants do not have art-related family backgrounds where about 17% have at least one parent involved in an artistic profession. The geographical regions of this sample were almost equally distributed between the East (China, 47%) and the West (Europe and the US, 53%). Overall scores on the individual items in the second part shows that more people believed AI art products has no authenticity (53.6%), and they considered them fake (47.3%), whereas opinions on assessing machine creativity and AI art quality was more nuanced as the majority remained neutral.

Table 4.1

Descriptive information of the survey respondents (n = 111)

Item	N (%), Range (mean)*	Item	N (%), Range (mean)*
Gender		Age	18-30 (24,9)
Female	85 (76.6%)	Years since graduation	-3-7 (0.98)
Male	23 (20.7%)	Still studying	24 (21.4%)
Others	3 (2.7%)	Graduated	87 (77.6%)
Highest level of education		Parental highest level of education	
Less than some college degree	15 (13.5%)	Less than and high school degree	24 (21.4%)
College to bachelor's degree	67 (60.4%)	College to bachelor's degree	70 (63.3%)
Graduate degree and higher	29 (26.1%)	Graduate degree and higher	17 (15.3%)
Number of parents in art profession		Scores on:	
None	92 (82.9%)	<i>AI art has authenticity</i>	
One of them	13 (11.7%)	Disagree-somewhat disagree	60 (54%)
Both of them	6 (5.4%)	Neutral	31 (27.9%)
Country of study		Agree-somewhat agree	20 (18%)
China (E)	53 (47.7%)	<i>AI art has creativity</i>	
The Netherlands (W)	35 (31.5%)	Disagree-somewhat disagree	45 (40.5%)
United States of America (W)	15 (13.5%)	Neutral	28 (25.2%)
United Kingdom (W)	6 (5.4%)	Agree-somewhat agree	38 (34.2%)
France (W)	2 (1.8%)	<i>AI art has artistic quality</i>	
Working state		Disagree-somewhat disagree	35 (31.5%)
Unemployed	66 (58.9%)	Neutral	40 (36%)
Employed (incl. freelancing)	46 (41.1%)	Agree-somewhat agree	36 (32.4%)
Monthly Net income (euro)		<i>AI art is fake art</i>	
0	23 (20.7%)	Disagree-somewhat disagree	53 (47.7%)
1-2500	52 (46.8%)	Neutral	37 (33.3%)
Above 2500	6 (5.4%)	Agree-somewhat agree	21 (18.9%)
Missing	30 (27%)		

* Values are range (mean) for continuous variables with a normal distribution, range (medium) for variables with a skewed distribution, or valid numbers (%) for categorical variables.

4.2. FACTOR ANALYSIS

Table 4.2.1 illustrates the component matrix outcome of participants' artistic work approach. Two computed factors were derived, of which the first was titled *Belief in Artistic Ideas*, and the second titled *Belief in Skillset*. *Belief in Concept* contains items that show a preference in less goal-oriented work approach where concepts and personal autonomy is more valued. *Belief in Mastery of Skillset*, on the other hand, favors the significance of skillset in artistic education and career. Scores on both factors are applied as independent variables in follow-up analyses.

Table 4.2.1

Factor analysis results on artistic work approach (Q18-Q23)

	Belief in Artistic Ideas	Belief in Mastery of Skillset
When I work artistically, I tend to let the process guide me instead of setting clear goals in the beginning	.735	-.049
I tend to use more analogue ways of creating art than digital ways.	.705	.004
When I work artistically, I value more the concept than the end looks or specific aesthetics.	.671	.057
I think art education should focus more on teaching skillsets rather than creative thinking.	-.082	.797
I think that artistic skillsets are essential to artistic creation.	-.050	.774
During my education, the curriculum was orientated more towards the teaching of skillsets	.359	.496

Principal axis factoring with varimax rotation, cumulative proportion of explained variance = 51.9

Table 4.2.2 presents the results of the second factor analysis. Four factors from the 13 items related to attitudes towards AI technology were identified. The component matrix revealed that the first factor, named *Concerned*, includes items which express pessimistic worries and concern about the implications of AI technology. The second factor encompasses items that highlight the benefits and positive aspects of AI technology in the art field, I labeled this attribute as *Excited*. The third factor, named *Indifferent* because the items it grouped talks least about impact on the art industry, instead they are rather skeptical of the impact AI will have on the creative industry. Finally, the last factor *Confident* grouped items that reflect strong confidence and beliefs in the superiority in human than machine algorithms in artistic works. All generated factors were saved from this analysis as separated variables. Factors *concerned* and *excited* were selected for regression models later as two dependent variables for this study.

Table 4.2.2

Factor analysis results on attitudes towards AI art technology (Q35-Q47)

	Concerned	Excited	Indifferent	Confident
I worry if AI technology will replace my professional position.	.804	-.044	-.136	-.225
Seeing debates and discussions about AI technology on the internet makes me anxious.	.799	-.161	-.139	.004
Once AI technology is fully matured, I believe that I cannot offer more than what AI can offer.	.768	.056	.027	-.096
Seeing the development of AI can make me lose some of my professional motivation.	.737	-.102	.209	.042

I think creating artwork with AI technology has a prosperous professional future.	.084	.883	-.092	-.067
I am very excited to see the development of AI technology in the artistic field.	-.261	.822	-.088	-.024
I think art schools should encourage more courses related to advanced technology.	.035	.706	.056	.287
The development of artificial intelligence technology can effectively free up some of the tedious mechanical aspects of creative work.	-.176	.562	-.111	-.055
The real impact of AI technology on visual art practice has not been significant.	-.161	-.106	.782	.248
I think discussions and debates around AI technology for the art field are still premature.	.168	-.143	.693	-.022
I believe that artworks created by AI need to be subject to certain controls to maintain the ecology	.136	-.060	-.591	.541
I can see those qualities in my profession/career that AI technology can never replace.	-.147	.148	.075	.797
AI algorithm has the potential to be equally competitive with human creativity.	.196	.447	-.132	-.477

Principal axis factoring with varimax rotation, cumulative proportion of explained variance = 62.9

To make direct comparison between geographical regions of education obtained, I created a new dichotomous variable which contains only regions of the East and West. According to Lowry and Wolf (1988), Western countries share similar ideological values in arts education. Therefore, the East contains all the Chinese sample, and the West is a sum of all European nations and the US sample. Following that, I conducted a two-sample t-test to compare whether the mean scores of the two regional groups differ significantly in their beliefs that artistic skillsets are essential in artistic creation. The result showed a statistically significant difference ($p = .005$, one tailed) between the East group ($M = 3.04$ $SD = 1.273$) and the West group ($M = 3.66$ $SD = 1.193$). A Pearson's correlation test further suggested that respondents' belief in mastery of skillsets positively correlates with educational backgrounds in the East ($R = 0.245$, $p = .009$). This means that I rejected the null hypothesis where the two means are equal in the study population and accept that hypothetically artists who studied in the East score higher in believing the essentiality of skillsets in artistic creation. This suggested that geographical deviations in the belief of skillsets in artistic creation were observed and were in accordance with prior literature (Lowry & Wolf, 1988; Yue, 2009).

4.3. REGRESSION ANALYSES

The second phase of the analysis examined the effect selected independent variables have on participants' attitudes towards AI art technology. The dependent variables are the *Concerned* and *Excited* attitudes. For each dependent variable, I conducted regression analysis which tested the effect of (1) socio-economic background, (2) study major and (3) region of study.

Table 4.3.1 displays the regression results on the *concerned* attitude. In model 1, I started with monthly net income and parents' involvement in artistic profession as socio-economic predictors. As shown, no significant effect was observed in this model. In model 2 and model 3, I added two

variables which grouped different study majors/professions in two different ways to see how each of them contribute to the predictability of the model. In model 2, I added variable that groups professions in terms of how much computational skill is required, in model 3, I used variable that groups professions according to the division of autonomy and heteronomy. In both models, no direct significant effects of the added variables were observed and both models showed lower variance explained (model 2: 8.9%; model 3: 9.8%). In model 4, I included region of study and work approach scores from factor analysis in the list of independent variables. Belief in mastering skillsets in artistic creation has a strong, positive power ($\beta = .303$, $p = .001$) in predicting the concerned attitudes towards AI art technology. Compared to other models, model 4 showed a rise in the explained variance to 19.4%. It should be noticed that male gender as control variable showed significance in models 2, 3, and 4. Identifying as male associated negatively with a concerned attitude about AI art technology ($p = .043$). As a control variable, this means statistically that compared to other genders, male respondents had less concern about AI art technology along with other significant variables.

Table 4.3.1

The associations of socio-economic status, study major/profession and region of study with **concerned** attitude about AI art technology

	Model 1		Model 2		Model 3		Model 4	
	<i>B</i>	Beta	<i>B</i>	Beta	<i>B</i>	Beta	<i>B</i>	Beta
(Constant)	1.366		.975		1.088		1.120	
Age	-.082	-.232	-.072	-.208	-.074	-.213	-.083	-.239
Gender (male)	-.392	-.160	-.464	-.188*	-.477	-.193*	-.557	-.226*
Gender (non-binary)	.504	.082	.428	.070	.391	.063	.630	.102
Highest education	.153	.188	.123	.157	.137	.174	.164	.209
Parental highest education	.085	.131	.079	.122	.068	.104	.054	.083
Monthly Net income	.010	.026						
Number of parent(s) involved in art	-.341	-.183						
Major requires computational skills			-.007	-.005				
Profession (Autonomous)					-.228	-.088		
Profession (Heteronomous)					-.176	-.083		
Region of study ¹							.016	.008
Belief in Artistic Ideas							.139	.139
Belief in Mastery of Skillsets							.303	.303***
R²		12.1%		8.9%		9.8%		19.4%

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.00$.

Model 1: socioeconomic status; Model 2: Autonomous-heteronomous poles of major; Model 3: required computational skills in major; Model 4: region of study in combination with education approach.

¹Regions of study is a dichotomous variable (1=East; 2=West).

Similarly, I computed a regression analysis for dependent variable *excited* attitude in the same steps. The result is shown in Table 4.3.2. Again, in model 1 (4.2%) I did not discover any significant effect from the socio-economic independent variables. In model 2, the total variance explained increased to 7.1 per cent where the variable of majors concerning computation skills showed a positive and significant effect ($\beta = .188$, $p = .045$). As this variable was coded in a way that larger values were attributed to majors that require more computation skills, this means that being in study

majors or professions that are embedded more in digital and computational work environment can have positive effect on embracing an excited attitudes towards AI art technology. In model 3, I switch to another variable to test the effect of study major, or profession and the results showed no significance. In model 4, I included region of study with different artistic work approach. Region of study showed a significant and negative power ($\beta = -.331$, $p = .002$). on predicting a person's excited attitudes about AI art technology and the model has a rise in its variance explained to 13.8 per cent. Since region of study is a dichotomous variable, where the East sample set was smaller in value than the West, this communicates that compared to participants who studied in the East, those who had art education in the West tend to be less excited about AI art technology.

Table 4.3.2

The associations of socio-economic status, study major/profession and region of study with **excited** attitude about AI art technology

	Model 1		Model 2		Model 3		Model 4	
	<i>B</i>	Beta	<i>B</i>	Beta	<i>B</i>	Beta	<i>B</i>	Beta
(Constant)	.452		-.704		-.162		.605	
Age	-.044	-.126	-.026	-.077	-.028	-.081	-.010	-.030
Gender (male)	-.052	-.021	-.115	-.047	-.100	-.041	.009	.003
Gender (non-binary)	-.541	-.088	-.573	-.093	-.555	-.090	-.095	-.015
Highest education	.171	.218	.161	.205	.153	.195	.097	.124
Parental highest education	.026	.040	.016	.025	.020	.031	.046	.070
Monthly Net income	-.017	-.043						
Number of parent(s) involved in art	-.158	-.084						
Major requires computational skills			.269	.188*				
Profession (Autonomous)					-.170	-.065		
Profession (Heteronomous)					.339	.159		
Region of study ¹							-.660	-.331**
Belief in Artistic Ideas							-.133	-.133
Belief in Mastery of Skillsets							.073	.073
R²		4.2%		7.1%		7.0%		13.8%

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Model 1: socioeconomic status; Model 2: Autonomous-heteronomous poles of major; Model 3: required computational skills in major; Model 4: region of study in combination with education approach.

¹Regions of study is a dichotomous variable (1=East; 2=West)

4.4 QUANTITATIVE RESULTS SUMMARY

To summarize from a combined view of both regression analyses, there was no significant findings about if, and to what extent socioeconomic status contributes to a person's attitudes of the AI art technology. Thus, H1 was rejected. Secondly, it was revealed that embracement of an *excited* attitudes about AI is positively correlated with a higher digitalized profession or study major. This is an expected results as it is logical that artists who are already experienced in computational work environments adhere more to the experimentation and adoption of AI. H2 was hence also accepted. However, no significant impact was found on attitudes towards AI technology regardless of if a specific major or profession was considered more autonomous or heteronomous. It is likely that both autonomous and heteronomous fields are approaching and incorporating new technology the similar

way to stay relevant in the general artistic field. I therefore rejected H3. Lastly, the variable *Belief in Mastery of Skillsets* was tested to predict *Concerned* attitudes about AI, while respondents who received art education in the East expressed higher levels of *excitement* about AI. These results appeared to be somewhat contradictory because on a surface look that being educated in the East predicted both *Concerned* and *Excited* attitude which should be mathematically mutually excluded. This should be understood as that *believing in skillsets* and *attending education in the East* as two variables did not fully overlap with one another, albeit they demonstrated mild positive correlation. The results of the fourth model could be comprehended as that, overall, respondents who attended artistic education in the East were more likely to be excited about AI technology compared to those studied in the West. At the same time, the emphasis on the importance of skillsets in Eastern artistic education also led to a higher chance of certain group of respondents' taking concerned attitude towards AI. It is worth mentioning that this study did not gather additional data to consider the effects of other cultural aspects on young artists' attitudes towards AI. In this regard, H4 was accepted, too. Though the East still display higher mean score on the emphasis of traditional art techniques, it displayed an unexpected result in predicting excitement which was opposed to what previous research have suggested.

A notable point was that respondents who identified themselves as males tended to worry *less* about AI technology's impact compared to other gender groups. No statistical significance was found on gender influence in testing *excited* attitude. As control variable, the finding suggested that gender difference has, to certain level, effect on a concerned attitude towards AI along with other factors but its effect does not equal to that of an independent variable. Many prior empirical studies have discussed gender differences in shaping technological adoption and usage (Li et al., 2008; Park et al., 2019; Venkatesh et al., 2000). And often it was reported that males have higher motivation in taking part in new technology and are more inclined to adapt to and perceive its usefulness compared to females (Li et al., 2008; Venkatesh et al., 2000). This presents future possibilities for research to further investigate on the role of gender in shaping attitudes towards AI, including considering a less binary division between gender differences.

Furthermore, hypotheses testing the effect of computational skills required in study and the regions of education attended was accepted. The other hypotheses testing socioeconomic status and majors in autonomous-heteronomous pole were rejected. These results were carefully considered during qualitative interviews for deeper understanding. In the next chapter, I will present the qualitative results from semi-structure interviews.

5. QUALITATIVE RESULTS

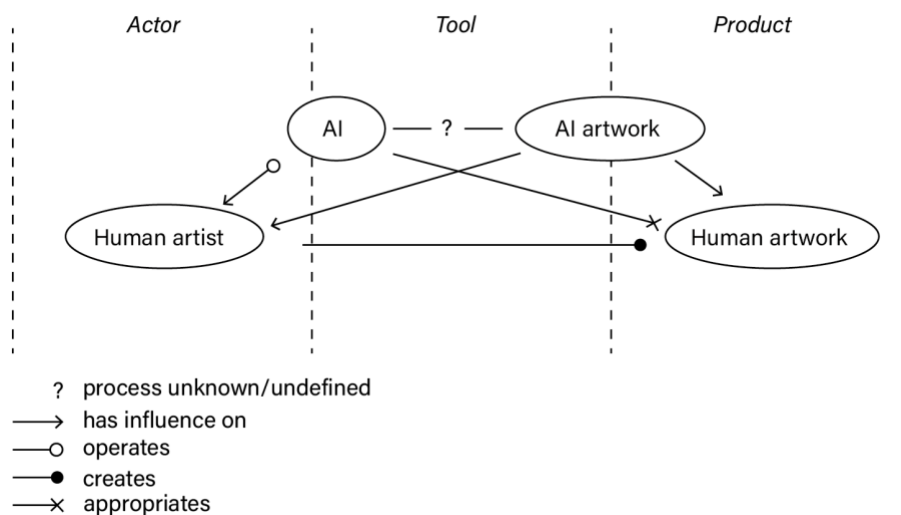
Eight semi-structured interviews were conducted with artists and designers who came from various background of genders, ages, expertise, and nationalities. This chapter provides an in-depth understanding of how they understand opportunities and threats in relation to AI art technology. Divided in two parts, I firstly reveal how interviewees perceive and construed their relations with AI and AI artwork in conjunction with quantitative results, thereafter I illustrate my main findings from thematic analysis which indicates *contextual negotiation* as a key approach among youth artists and designers when they respond to opportunities and threats of AI.

5.1. A RELATIONAL MAP

A relational map was firstly drawn to analysed interviewee's perception of AI through the relations they make between themselves, their artwork, AI technology, and AI artwork. In Figure 5.1, I placed all four items on a grid that is divided into three fields, *actor*, *tool*, and *outcome*. *Actor* refers to anyone who engages in taking action from with adequate level of intention and expectation, *Tool* refers to auxiliary mechanics or artifacts that assist the actors in producing. *Product* means the material goods or service of a process that actors worked on.

Figure 5.1

Perceived relations between artists, artwork, and AI



Human artist and human artwork each refers to a human being artist and artwork that is produced with the hands of a human artist. There was no question on the positions of these two items each in *Actor* and *Product*. However, when it came to the position of AI and AI artwork, each referring to AI art algorithm and artwork that was produced through AI art algorithm, received more attention and discussion. First, it was seen in divergent opinions among interviewees on if they recognize AI algorithms to be an actor or a tool. Typically, interviewees struggled with whether AI

has intention and was reluctant to label AI as only a tool. Some speculated that AI will eventually outgrow human control, that “after it's learned enough, it's not anything that's made by the original person anymore” (Stefan, male, 26, studied in the Netherlands, graphic designer). Regardless, the majority still believed that the real actor creating AI artwork should be human. Therefore, AI is placed on the border between *Actor* and *Tool*, more towards *Tool* as it is still more identified as an add-on to the current art-making process. AI artwork, on the other hand, was less debatable. Most interviewees spoke of these computer-generated works to be both a work of art itself and something that they would utilize for providing solutions or optimizing their work. Hence, AI artwork sits in the middle between *Tool* and *Outcome*.

In addition, Figure 5.1 also contains interrelationships between the four items beyond the position in the grid. First, all interviewees expressed that the rise of AI technology is causing concerns about AI replacing human jobs in the future, as one interviewee puts it, “one of the biggest fears people are having is ... fear of being replaced, fear of art being replaced, fear of not having a job⁵” (Ji, female, 28, studied in China, painter/illustrator). Besides the salient concerns, the merit of AI was also recorded in some’s excitement and curiosity. Yu, a 23-year-old visual design student in China told me: “You get a bit upset (upon seeing AI’s ability), but then you quickly feel like that I’m seeing a good, good tool, something that I feel is going to help us as designers to do our job much better”.

The second outlook points to AI algorithms and human artwork. Due to how AI is trained and learned, some interviewees sensed the threats of AI “stealing” from unwillingly provided human work, “you can't really say that there's any part that's the same (between them), but it's just, well, similar, um, there's just an inexplicable connection in it... anyone's work is now actually under risk⁶” (Katy, female, 26). Out of this worry, it is often heard from interviewees that AI artwork and human artwork are put at confronting sides. Online art platform and community have seen several protests about mix-publishing human artwork and AI artwork, as well as the necessary legislation of distinguishing AI art from human art such as hashtag. The influence of AI technology on human artwork seems to be pervasively perceived as a worrying topic which revolves the topics of legal copyright, plagiarism, and theft.

The relationship map reflected a general attitude that interviewees held towards AI art and AI technology. On an average base, the majority of the interviewees showed their concerns, two out of eight interviewees showed distinctive aspirations to integrate AI into their work. One interviewee particularly displayed an indifferent opinion about the effect that AI can bring about.

⁵ 人们最恐惧的一点就是 AI 它生成太快了，它相当于，比较害怕自己被替代，害怕艺术被替代，害怕自己没有工作被 ai 替代。

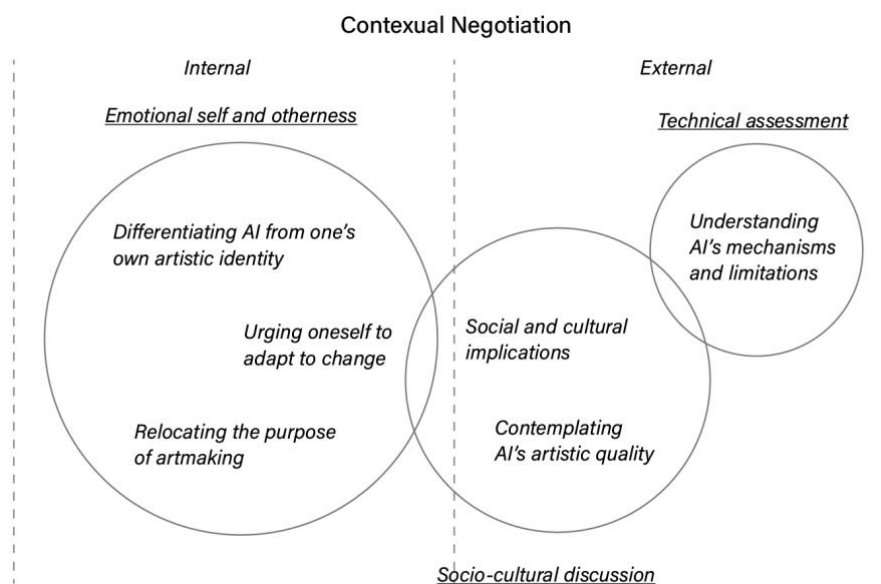
⁶ 你也不能说他是有一个部分的结构就是一样的，但是就只能说是，嗯，神似吧，嗯，就是有一种莫名的连接在里面。任何人的作品其实都是，怎么说，在风险之下的。

5.2. CONTEXTUAL NEGOTIATION: INTERNAL AND EXTERNAL

Interviewees held substantially nuanced and diverse attitudes towards AI art and technology from various perspectives, with *contextual negotiation* emerging as a common theme (Figure 5.2). Their understanding of AI and how it brings opportunities and threats were often contextual, meaning that their perspectives and approaches varied depending on which context was being discussed. Interviewees often tried to find a balance while conveying their opinions by jumping between different perspectives. It was common that their expressions diverged into two directions of perspectives. On the one hand, some interviewees tended to emphasize their feeling about AI through *internal negotiation*, where the focus was on topics that revolved around personal views and beliefs such as self-efficacy, professional prospects, and the dialectical discussion of the essence of artmaking. On the other hand, expressions and comments were also made pointing at *external negotiation*. This means that interviewees catch the impacts and meanings of AI from a perspective that is external to themselves as subjective individuals. Instead, they examined AI art and technology in a socio-cultural context. As shown in Figure 5.2, three circles each represent *Emotional Self and Otherness*, *Socio-cultural discussion*, and *Technical Assessment* are presented in a divided field of *Internal* and *External*. The sizes of the circles indicate their relative levels of discussion received during the interviews. *Emotional Self and Otherness* overlap to a certain degree with *Socio-cultural discussion* in the sense that part of the interviewees' internal negotiation involved topics that were socially engaged while remaining a personal angle. Discussions on the technicality of AI also overlap in part with social discussion as those details are eventually reflected in social interactions. The two overarching orientations and the three themes encompass both acknowledgment and criticism of AI, leading to a multi-dimensional interpretation of opportunities and threats from AI.

Figure 5.2

Overview of results: applying contextual negotiation in approaching AI art technology



5.2.1. *Internal negotiation*

When trying to understand AI's impact in examination from a nuanced personal perspective, many interviewees commented with expressions that are closely related to their self-evaluation and their internal value and belief for assessing job prospects and what art means to them. These expressions were less about stating observation, but very often showed direct emotions. I identified these characteristics as *internal negotiation*. This category interweaves themes of awe, concern, and despise towards AI and its development. In some cases, certain portion of pride was detected for being a non-AI artist. Three code groups were gathered under this theme, *differentiating AI from own artistic identity*, *urging oneself to adapt to change*, and *relocating the purpose of artmaking*.

5.2.1.1. *What does it matter if it's not created by you?*

Differentiating is a common strategy that interviewees took on when talking about AI. Differentiations were made by interviewees through an emotional judgement of AI art, othering AI as competitor. On several instances, when asked about how they feel seeing the recent development of AI, interviewees gave emotional answers. For example, Rena told me that “The few newest model...they're just, too scary”. Vera said that “so I think on one hand it is still amazing, on the other hand it's scary, and then sometimes I get very angry as well.”

Most interviewees started by showing amazement at what AI is capable of at this moment, though quickly overshadowed their owes with a thick cloud of concern, talking about AI as “scary” and “intimidating”. The concern mainly came from two paths. First, it was captured that they worried AI could be harmful to their career. At the core of this thinking, one's concern is derived from a combination of fear of self-devaluation as artist and having to face an insecure career future. The former has its emphasis on the destruction of one's artistic identity, this was particularly seen in the case of Vera:

I'm scared to try (AI art) because I'm afraid that if I do that and it is able to generate what I have in my mind, I will start to de-value myself as an artist. Yeah, so I think that's scary... I guess I am crazy? I'm pretty scared of it because, yeah, if the AI is able to create exactly what I have in mind, what's the use of me creating it anymore if something else can create it for me? Then you lose the entire process part and the entire part where you value yourself as an artist for whatever kind of skills you've been accumulating over the years. Like, the skill of your technology, yeah, it's gone if it's not yours. The skill of your own creativity, of your composition, what does it matter if it's not created by you? So, yeah, it is scary.

(24, nonbinary, the Netherlands, freelancing illustrator)

Another source of concern points towards other human actors within and outside the artistic industry. Some interviewees expressed that their anger came from deeming AI technology as “unfair”. Since the growth of AI established an extremely low threshold for mediocre artists and the non-artistic public to use the program to become an eye-catching “artist” easily with “zero-investment”, artists who have spent years in institutional education system, and who spent hours and days to create and refine their artwork found the phenomenon unfair. These waves of angers sometimes contained jealousy. Again, Vera confessed:

I guess primarily my anger goes towards, I guess it's jealousy maybe, because people get so much, these artworks get so much comments and likes. Yeah, because it's something that a computer generated gets so much attention and so much positivity.

(Vera, 24, nonbinary, the Netherlands, freelancing illustrator)

According to them, “attention is an artist’s livelihood”, getting exposure and attention means being recognized by the vast public and promises a higher chance to establish themselves to more “renown sources”, “fame” and “money”. Quite overwhelmingly, the interviewee sensed a threat of AI taking a share of the attention, and therefore taking away opportunities from human artists’ success, especially when they feel insufficient in comparison with what AI is now capable of. Furthermore, they questioned on the same line of thought whether it is a fair competition between AI and humans after all. Production of AI was deemed no art, no skill, and importantly, no “human suffering”, a term that Vera used to describe the affective investment in artistic creation. Artistic education path, no matter whether institutionally educated or self-taught, seemed to be paired with the concept of suffering. It is historically recognized in Western canon that artistic creation connects deeply with human affective experiences such as astonishment, sufferance, or joy. “In ways, suffering most influences artis; in others, art mitigates suffering” (Buyachek, 2014, p. 2). By pointing out the absence of suffering, a form of action that is exclusive to living beings (as animals also can suffer), this perspective emphasized that not only that working through AI embodies emotionlessness, but their success also signifies a hurtful betrayal to artists who put great endeavor in the making of art. Similarly, other interviewees also thought that it felt very hard to credit AI artists who came from non-artistic backgrounds “without touching a pen or a brush or nothing at all”. From their view, those artworks are often just works of theft, featuring no artistic ideas but emptiness.

5.2.1.2. Join it or change your game: an urge to adapt to AI

Feeling insufficient in the face of AI technology was a typical feeling that emerged in all interviews. Many realized that AI is now “unstoppable”, even established companies like Adobe is recycling our work data for AI training. This naturally led to a growing fear of being replaced on the labor market, a topic that was discussed in William Ogburn’s theory of cultural lag and technological

employment (1922). Richard, a graphic designer who is currently specialized in the field of AI and design told me that “I would like to believe that we cannot be replaced, but I feel like, yeah, we can, yeah, it can get competitive.” When asked about why they feared being replaced, most of them pointed out that AI is too fast in both its learning and producing speed. AI as a non-living entity relies on no food intake nor rest, its work mode is never-ending. Its production speed is beyond what you can do anything about. Bearing this in mind, many found that to compete with AI became a vain attempt. Rena, the 24-year-old game designer, expressed, “You either surrender and join it, or you simply have to change your game⁷”. In its original language, this phrase is commonly used in internet culture which conveys the idea of adapting to the status quo or finding alternative solutions.

Although concerns and a sense of powerlessness were often mentioned among interviewees, and according to their accounts, some groups of individuals they knew in the visual arts industry exhibited a self-defeating attitude passively regarding the discourse around AI technology. However, some of them showed readiness to embrace and explore AI. They believe that it is the proper moment to start adapting to AI. One compelling reason for them to try out was seeing the achievement of AI, which served to be a strong incentive to get involved in an AI landscape. The solutions AI now provided have far exceeded what they expected and therefore fueling their motivation. One interviewee mentioned that:

There were a couple of senior students who were already using some AI software to present their projects. It was a bit of a shock to me at that time because we had been thinking of many ideas, mostly using hand-drawn illustrations. But then these senior students suddenly presented several complete proposals. Each proposal was well-developed, and it didn't seem like they were randomly generated or pieced together. It was a meticulous solution, and at the same time I felt creative, too. The senior student explained that they used an AI tool called MJ (Mid-journey) to generate ideas based on input prompts. It made me think that I definitely need to try out this AI software, I want to learn how to use it for myself.

(Yu, 23, female, China, visual design student)

While some interviewees like Yu showed curiosity to explore AI's capabilities, some other interviewees regarded their adaptation more as a safeguard mechanism. By getting to use and understand what AI art programs are capable of, these interviewees wanted to understand what they are dealing with and to what extent can AI affect them. Katy told me that “actually by using it, on the one hand, it assists me in the work, and on the other hand, I can get to know where its boundaries lie.⁸ By recognizing the boundary, she believed that it would inform her of the progress of AI's

⁷ 所以，你要么打不过就加入，你要么就干脆换赛道。

⁸ 我要学会怎么用这个东西，就是嗯，嗯，也就是说，因为要参与到使用 AI 的这个群体里。对，其实在使用它的过程中，一方面是辅助工作，另外一方面也知道它的边界在哪里。

advancement: what and how much can AI do at the moment, and what further steps is AI undertaking. At the same time, it became a referential example for herself to understand the gap in capability between herself and AI. This aligns closely with Becker (1984) and Skaggs (2022) in terms of artists strategically accommodating themselves to the latest trends and conventions to stay relevant.

5.2.1.3. There is a sort of art that cannot be replaced: relocating the purpose of artmaking

Aside from the discussion on the specific topics related to AI technology and the concerns about being replaced by it, respondents sometimes shifted their focus to a prominent theme, which is the real purpose of artistic creation. A few interviewees spontaneously brought up their belief that true artistic creation should be distinct from the societal behaviour of exchanging art for monetary and life resources which we based our discussion upon. They argue to differentiate “making art as one enjoys art” from “making art as one needs money”. They pointed out that the discussion did not include the consideration of a non-monetary aspect of artistic creation and artistic experience. As an interviewee mentioned:

If you didn't have to work, you could actually be proud of what, whatever you paint or draw. It's exactly because we all need to work, and we are forced to compete with others (for job opportunities), that's why we have anxieties of all sorts.⁹

(Rena, 24, female, China and the USA, game designer)

Similar reactions from other interviewees were also elicited when being asked about what kind of attitudes towards artmaking they would want to carry. Some of them also stated that it would be very important to find the right balance between challenges and inner peace. Together with the excerpt shown above, they indicated that regardless of the development of new technology in society, artists and designers ought to feel proud and confident about what they created. In other words, they called for an introspective process of examining who they really wanted to be and their self-value. Rena also believed that if one falls into the inducement of new trends and technology, their artworks will face the risk of degrading to a mere means of competition, where it becomes difficult to retrieve a personal touch to their work.

Adding to the line of that, five out of eight interviewees had a strong emphasis on the presence of authenticity in human-made artwork. These opinions posited that despite AI has been developing itself to more skills and capabilities, there remained one quality which AI would never be able to provide to its audience, which is the human experience in life and their emotions of a will to express. These experiences encompass high affective motions to the most trivial details of life. This once again consolidates concepts which have been discussed in previous literature like Coeckelbergh

⁹ 假如没有上班那你其实画成什么样，你都可以感到很自豪。就是因为咱们都被迫要上班，被迫跟人竞争，所以才会有这样那样焦虑。

(2017) and (Schröter, 2019) where they argue that the work of AI is the result of a non-bodily entity that fails to historical value and authentic self. One of the interviewees stated:

But I think a big part of what defines the worth of art and design in general is that it's a product of someone's experience throughout life. And that has to do with like education, work experience, life experience, that all accumulates into a single project or object. And that's something that the artificial intelligence cannot have. They cannot offer the audience.

(Stefan, 26, male, the Netherlands, employed graphic designer)

In this regard, Stefan suggested that a living person's historical presence is an irreplicable superior characteristic of the human that shapes their habit and way of thinking. The experience of life and emotion is inevitably embodied in the work of art that a person makes. Mass machine learning might be able to reproduce the physical presentation and appearance of a work of art, but it will always fail to integrate a part of material and time presence as long as the computer is incapable of a bodily presence in sensual experience. On the other hand, Vera composited the artmaking experience with the fear of being replaced by AI, they commented:

But if you value the process of making art, then that is an aspect that cannot really be lost even though there is AI. Yeah, it's going to hurt because you will be replaced. But there is a sort of art that cannot be replaced and that's the process of making art, I think.

(24, nonbinary, the Netherlands, freelancing illustrator)

By seeing the “process of making art” as art itself, they called for attention to a way of looking at artmaking through a different lens, which focused less on the utilitarian benefits, but a reaffirmation of the authentic “self” that is gradually seen lost in a profit-driven society.

To conclude, interviewees often searched and negotiated their self-value in light of AI's progressive performance through a strong subjective stance, focusing on themselves as the recipient of the impact. They responded to AI with instinctive personal reactions and thereafter searched for solutions to cope with the fear and pressure of being replaced that was caused by AI. As an introspective approach, some of the interviewees actively tried to relocate where the value lies in the purpose of them making art in the face of readily progressing technological development.

5.2.2. External negotiation

Moving from responding to AI from a personal viewpoint, the other orientation that interviewees took was through the negotiation of the external perspectives. Contrary to internal

negotiation which concentrates on the internal subjective motivations, external negotiation embarks on aspects concerning larger scopes of meaning-making, this includes an outlook on AI's impact on a socio-cultural level and its current technical performance. Under this theme, three topics were derived in two directions. On a technical level, interviewees discussed AI's current limitations by contemplating its mechanism. Within the socio-cultural discussion, interviewees focused on *defining AI's social and cultural implications*, and *AI's artistic quality*.

5.2.2.1. A pronounced "flavor" of the AI: current technical limitations

A common entry point for evaluating AI and its work was the assessment of AI's current performance. During our conversations, five interviewees paid attention to examining AI's techniques including the use of color, perspective, and lines of figure. For example, Penn mentioned that "although AI has provided me with some fair and aesthetic interior design solutions, its work on architecture still had weak points¹⁰". Being a painter and illustrator, Ji told me that "though AI can mimic various styles, none of them is considered *the* perfect style for me so I got bored¹¹". Four interviewees spoke about how they can still sense the imprint of AI in the work it produces, to suggest that its techniques are still not yet comparable to that of humans. An interviewee mentioned:

Currently, I feel that the presence of that "flavor" is still quite strong, and it still requires us as designers to make secondary adjustments to these artworks or even engage in rounds of re-creation. It can only serve as a tool and cannot completely replace the work that we as creators are capable of doing.¹²

(Yu, 23, female, China, visual design student)

Many interviewees also deemed AI as not a static tool. They recognized that AI is at the moment undergoing tremendous evolution and upgrades. Through participating in the readily evolving landscape of AI's technicalities, users' input and the market's demand also offered substantial feedback to the self-optimization of AI's techniques. Mentioned by Yu that a frequently mentioned complaint about AI used to be that it couldn't draw proper human hands. Consequently, the disfigured hands became a distinctive sign to reveal the source of the artwork. The technical team thereafter worked on its algorithms in calculating the hands so soon later, the problematic disproportioned figure was tackled, so disappeared one of AI's signature blunders.

Aside from AI's limitation in the specific techniques, others reported on the homogeneity of an "AI flavor". This referred to high repetition in AI's use of visual elements, figurative style, and

¹⁰ 我觉得它的室内设计上面，其实已经满不错了。我觉得它的图要做的也挺好看。但是建筑上可能还有一些缺陷。

¹¹ 虽然他风格很多。但是他不是我内心中完美的风格，我就瞬间觉得很无谓很没有劲

¹² 目前我是觉得，它那个 AI 味还是有点重的，然后还是需要我们作为设计师去对这些作品进行二次调整也好，或者是再创作也好，就它只能成为一个工具。它不能说完全的取代掉我们本身就是能够做的一些工作。

concepts as considered “typical” in the artworks that AI produces. As argued by Tao (2022), AI’s counteraction on the aesthetic style could alter the way human perceive artistic aesthetics.

Interviewees argued that such a perpetuated “AI style” in artworks will have an influence back on the human artists to compete with its efficiency and aesthetics, eventually leading to the diminishing of individual characteristics:

Because I feel that what is being produced is simply a collection of familiar commercial styles...which is not interesting. Moreover, even that kind of style was created by a human, I would find it quite repulsive. It is packed with ignorance of individuality under the guise of commercial packaging.¹³

(Rena, 24, female, China and the USA, game designer)

This sentiment corroborated Adorno’s criticism of the integration of technology in art as it replaces the role of individuality and subjectivity with mechanical rationality (Tao, 2022). AI’s lack of variety and personality has therefore been deemed another weakness. out of eight interviewees considered the AI mechanism as “copy-pasting”. However, I observed controversial opinions on such mechanisms among the interviewees. Vera, for example, though they value the authentic process of humans making art, nevertheless considered art to be an action of copy-pasting by nature, “I think art is always a sort of copy-pasting of reality. You look at something and you imitate that.” Katy also stated that “human artistic creation process is similar to the AI process, they both learn from what came before you and then borrow from them and then to produce their own thing”. Both interviewees compared the mechanism of AI with human behaviors and regarded them as alike. However, others raised challenges if AI has an equal level of creativity. Yu, for instance, pointed out that “AI may be capable to generate images for you based on what it learned from the database, but it remains a question whether it has its own style¹⁴”. Others also called AI artwork to be “strategic”, which means that they follow an existing popular formula and reproduce to meet the market’s demand. Following McCormack et al. (2019) on the discussion of intentionality, the reflection on the limitation of AI’s working mechanism embarked both on the technical details, and whether the absence of intentional and emotional faculty is ultimately limiting AI’s capacity.

5.2.2.2. *A work of art as a social interaction: contemplating AI’s artistic quality*

In terms of the AI-generated artworks commonly found in the market, some of them exhibit the mentioned flaws and weak points, but there also exist AI artworks that are quite indistinguishable

¹³ 因为我感觉画出来的完全就是很多已经很熟悉的商业风格，就感觉已经有一种在缝别人的画风的感觉，没啥意思。而且太商业了，就那种，看我其实就那种画风就算是人画的我也会觉得挺，挺恶心的。就是充满了一种商业包装下的精致的那种叫无视人的个性的那种感觉。

¹⁴ 它可能就是从图库里面去给你生产的东西，但是它能不能够就是说真的自己去再呈现一个它属于它自己的一个风格的状态。我感觉这个也是可能会存在的一个问题。

from human artworks. Interviewees often conveyed that they would feel “disappointed” and “betrayed” by a well-executed artwork that turned out to be made by the AI:

... I think this is also relating to the fact of fake art and reproduction. It's kind of like, let's say you go to a museum and there is a painting there and it's claimed to be like, I don't know, a Rembrandt or a Vermeer or something, but then you have this experience of looking at the painting and it has a certain effect on you. Like you have an emotional response or whatever you think something, but then if someone tells you afterward that it's a reproduction or that it's a fake, does it become less valuable? And I think that goes for AI art a lot as well. I think if the experience, the experience will still be the same, but something you hear afterwards can definitely change it when you look back on it. But that always has been a tricky subject, I feel, and now it just gets even more tricky when AI comes in the mix.

(Stefan, 26, male, the Netherlands, employed graphic designer)

As reviewed earlier in theory, what (Benjamin, 1935) called aura is embodied in a physical, timely encounter between us and the object. However, as soon as it reveals that the work was not done by a person at a specific moment but can be reproduced endless times, it lost its aura. The importance of a living person's presence in the artwork seemed particularly crucial to many interviewees. Ji told that having a “spontaneous outlet of emotion” is what she looks for in her work. Emotions, bodily presence, and intention are so far still considered not-exist with AI. Vera, on the other hand, pointed out that the pursuit of authenticity is not object-specific, it is rather a social norm that has shaped our value system, she said: “... authenticity is such a key aspect to how we value art in society that I think it will be very difficult to get rid of that very soon.” What they tried to convey here is that valuing authenticity in an artistic convention is a collective recognition of society in general and not a personal preference. We will always thirst for an authentic experience with art and other people, whose existence represents social relations. Rena told me that, “it is said that our appreciation of art or a work of art is essentially a communication and interaction between one another. Anything one does is, in the end, seeking a kind of socialization with the others.¹⁵” Four interviewees contributed to the statement by saying that their irreplaceable quality is perhaps the quality of “human aspect” and “human contact”, which indicated a human mind responding to another, and through which meaning is thus created.

¹⁵ 说人欣赏一个艺术，艺术作品本质是一个人跟另一个人之间的沟通和互动。人做的任何事情实际上都是在寻求一种跟其他人的社交。

5.2.2.3. *Social and cultural implication on copyright, ethics and job prospect*

The social and cultural implications of AI were pointed at legal copyright protection, the potential increasing gap between types of artists and companies, and the prospecting of new job opportunities.

The word “copyright” and “legislation” were frequently used when interviewees tried to focus on AI’s impact from the perspective of legal protection. Commonly they argued that one of the risks they are facing is the current lack of legal constraints on AI. This referred to, for instance, violence against artists’ copyright when their works were unwillingly gathered for training purposes, or to some extreme, generating profits. They mentioned that sometimes they found some so-called “AI artists” suspiciously stole established renowned artists’ work for specific output to catch attention and profits. From their perspective, this was deemed problematic since not much can be done against it at this moment with a lack of copyright law on AI. Rena said: “...especially in the case of trading between individuals, if someone is willing to buy it let them buy it. But as companies or society, you might want to regulate that behavior¹⁶”. By the time of this thesis, it has been declared that no global convention has been settled in the regulation of copyright in AI-generated artworks (Lanz, 2023). The concerns among the interviewees on the legislation for AI art resonated and consolidated with the production of cultural perspective theory (Peterson & Anand, 2004) where they positioned law and regulation as the second facet which came after technological advancement. This result also supported Ogburn’s (1922) theory of cultural lag where institutional legislation and cultural norm lags behind technological development.

Utilizing AI in creative work is not only individual behaviour but also related to companies and business models. Some interviewees anticipated that being skilful in artificial intelligence or AI art software will become another standard entry requirement in the job market, and through which the entire work environment will change. Others also extended their contemplation to the future of the art industry. Penn deemed that in the future, companies and workplaces would be divided based on their goal. Those who are appealed by efficiency and speed would integrate AI into most of their work. For others who seek originality, they would hire highly experienced professionals next to AI. While she considered small-scale workplace whose work is more artistically driven to remain a pure essence of human-made art to differentiate their work from the others, for their designated clients who “sits higher in social class”. This statement almost implied that the interviewee considered human-made art to be superior in its innate value to be more legitimate than a machine-created work which is considered popular, and potentially kitsch. Aside from the difference in production and consumption pattern, others also questioned a possible mutual incomprehension between artists and the public. Since the public usually cannot discern the difference or quality between AI-generated work and

¹⁶ 尤其是个人之间的交易行为，那就是一个愿打一个愿挨。那有人愿意买就让他买，但作为公司和社会可能要规范这种行为。

human-made work, it bears the risk that the non-specialist client will contest regular artists' work value. Another danger that emerged with indistinguishable AI art was mixed-up reality and false images. Often caused by technology such as deepfake, the public needs further regulation and guidance to avoid, what Stefan mentioned, "a post-truth society".

Although remarks and criticisms were often made to scrutinize the challenge that AI brings to our society, prospects for future opportunities were nevertheless negotiated, too. Reacting in the same regard of AI replacing human jobs, Richard said:

And I think maybe they could replace us. But on the other end, I also feel like, for instance, like many years ago, the camera came into the world and people were like, the painters were like, oh, now we're going to lose our jobs, right? But then people became photographers. So new kind of professions were created.

(29, male, the Netherlands, freelancing graphic designer)

As discussed in the literature review, the invention of camera hit hard on painters' jobs and is now often used to compare with AI. Being an AI-expert designer, Richard seemed obviously more composed and held an open attitude to whatever changes to come along. "It doesn't have to replace things. It can just change."

5.3 QUALITATIVE RESULTS SUMMARY

To conclude, two orientations were derived from the qualitative data under the general theme of contextual negotiation. Depending on their choice of context and perspective, interviewees jump between opinions and attitudes as an approach to finding a balance regarding their understanding of AI's threats and opportunities. A strong perception of threats was detected from two perspectives. First, interviewee generally conveyed their fear of being replaced in the job market by AI technology from an internal perspective which often leads to an urge to learn and use AI. Secondly, a sense of insecurity was perceived which is caused by the absence of proper legislation for AI art's copyright which can lead to problematic situations. The opportunities of AI were perceived and negotiated by recognizing its efficiency in assisting current workflow, stimulating artistic ideas, and the anticipation of new types of occupations created by the rise of AI. The discussion on artmaking experience, AI's artistic authenticity, and AI's current limitations were additional findings that supported and implemented the interviewee's arguments. Taking a holistic view of external negotiation in conjunction with the quantitative results, I discovered that interviewees who attained their education in China were inclined to be more involved in the topic of technical discussions while those who received their education in Western countries had more to convey on the social and artistic implications. This finding complied to a certain level with the quantitative results which I will synthesize in elaboration in the next chapter.

6. CONCLUSIONS AND DISCUSSIONS

As our society advances rapidly into an increasingly technology-driven landscape, the recent trend of integrating Artificial Intelligence (AI) technology in text-to-image programs has sparked various repercussions in the visual art field. Much like the age when the camera was first invented and brought into art practice, today's AI art technology becomes a comparable phenomenon to the camera which receives a myriad of attitudes. Taking a generation-specific and culturally sensitive perspective, this master thesis explored how the young generation of visual artists and designers perceive and respond to the impact of AI art as technological advancement. Employing a mix-method research approach, this thesis collected diverse data from both quantitative and qualitative perspectives to expand its scope of results and each method implements one another in responding to the research question. 111 survey responses and eight interview data were collected to first answer what the major factors are associated with attitudes artists and designers have towards AI art and technology, and secondly, how they understand the opportunities and threats of AI technology.

Results in this thesis have indicated that the two approaches undertaken had each their own finding while managing to add more to each other in a holistic synthesis. The survey results scrutinized two divergent artistic work approaches and four variations in attitudes towards AI by conducting principal component analyses. The artistic work approach was divided into the belief in artistic ideas and the belief of mastery of skillsets. The four attitudes were labeled as concerned, excited, indifferent, and confident. Two linear regression analyses revealed that young artists and designers' attitudes towards AI technology were statistically associated with three factors. Higher levels of computational skills required in their studied major demonstrated a positive influence on predicting artists' excitement. While having belief in the mastery of artistic skillset in artistic creation predicted towards concerning emotions. At last, obtaining one's art education in the geographical East showed a significant and positive effect on being excited about AI.

From the qualitative results perspective, a general theme of contextual negotiation was derived as its conclusive finding. This suggested that the young generation of visual artists and designers tend to negotiate their understanding and responses about AI between different given contexts. This thesis discovered that interviewees commonly negotiate their judgement about AI in search between an internal orientation and an external orientation. Sub-negotiations were seen under the two main branches in some cases. An internal perspective was referred to interviewees taking a subjective stance with personal beliefs and values. Interviewees often negotiate their feeling by differentiating AI from their own artistic identity, urging themselves to adapt to changes, as well as relocating the purpose of their artmaking. On the other hand, the external perspective tackled meaning-making from a social and cultural stance. They reasoned through the understanding of AI's mechanisms and limitations, contemplating AI's artistic quality, and providing arguments on AI's social and cultural implications.

By integrating the findings obtained from both qualitative and quantitative approaches, this thesis also made several syntheses in relation to their contributions to previous literature. A prominent supporting theory used in this thesis focused on the geographical difference in art education orientations between the West and the East. It indicates that a modernist approach undertaken by the geographical West differs from a traditional focus on artistic techniques, which is still valued by Eastern systems (Lowry & Wolf, 1988). This study highlights that the hypothetical influence of education orientation on youth artists' perception of AI was supported by the results in fruitful ways. First, as the quantitative analysis consolidated this difference in the study population, it was expected that taking art education in an Eastern country would predict concern, since *belief in skillsets* and *obtaining education in the East* were two variables that positively correlated. However, it was surprising that students in the East felt more excited about AI. The unexpected results were consolidated by the qualitative results, too. Interviewees who had education backgrounds in China tended to focus more on the technical assessment of AI art techniques and their own professional performances, which relates to the emphasis on skillsets in their education as they told. Considering the average young age of the participants as a premise, this thesis wants to contribute to this line of theory by proposing that as opposed to established artists, younger generation artists with Eastern education backgrounds are more inclined to find AI an appealing and must-learn tool to assist their artistic skillsets during the start-up phase of their artistic careers to align with on-going trends and standards in the industry. In comparison, artists who have study backgrounds in a Western context tended to show less enthusiasm but contemplation on its social and ethical impacts. Moreover, attending study in the East does not signify an absolute technique-driven educational approach. This was evident in one interview participant who mentioned that her study values artistic ideas over technique. And in this case, she displays mostly indifferent attitude towards AI. This indicates that the difference in education approaches could potentially have higher influence on technology perception than study regions.

The integrated results also support other theories which have been reviewed. The production of culture perspective theory (Peterson & Anand, 2004), the theory of culture lag and technological unemployment (Ogburn, 1922) were supported and were often given high emphasis in the results. Among participants, the concern of being replaced by AI was prominent, following by discussions on the problematic lack of copyright legislation and the potential tension between social groups. The urge to adapt to an AI-driven workflow is also considered an accommodation to the industry's changing standards and conventions which received criticisms on its negative effect on individuality and subjectivity. Considering the discussion on AI's authenticity and creativity, a consensus was observed in both survey and interview results, validating the concept of aura by pointing out that the absence of bodily and timely presence of another being in the process of AI's artwork is still considered a major limit in competition with its human counterparts.

One prominent limitation in this thesis is the temporal lag in the timeline of AI's development. As stated, AI is readily evolving and developing itself at a fast pace over the months of working on this thesis, it was, therefore, impossible to remain relevant to every aspect of AI's newest updates. From a methodological perspective, this thesis also has its limitations on a few points. First, insignificant results demonstrated in some parts of the quantitative results could be a weakness due to the small quantitative sample size. Statistically, small sample sizes can lead to bias and insignificance in test results. It was also noticed that data acquired for educational level as one component of SES data tends to be homogenous because there showed few respondents with a college degree and below, while the majority obtained a bachelor's degree and higher. This could potentially affect the statistical outcome. Secondly, half of the qualitative interviews were conducted online through communication software due to the limited mobility of the researcher. Most of the online interviewees requested to remain connected only through an audio line. The physical distance plus the invisibility of both sides' image can decrease the sense of comfort and trust between both parties. A last theoretical outlook on the limitation of this thesis concerns the researcher's proximity to the subject of research and a culturally laden background in established Western art education. This potentially introduced biases and preconceived notions in both the design of the research instruments and interpretation that disadvantaged objectivity and generalizability to a certain degree.

This thesis also wants to provide several propositions as to inspire future studies on researching the topic of AI technology in the artistic field. Gender as a control variable in this research was not decided to be a factor of interest due to scope and time limit, it is worthwhile for future studies to investigate how different gender roles influence artists' perception of AI technology. Adding to the line of Benjamin's theory, the production of AI art is technically not the complete identical reproduction of another artwork, it will be interesting to see how future studies can synthesize this nuanced "creative deviation" on Benjamin's notion of *reproduction*. Last but not least, growing with AI's maturation, it is maybe valuable for future studies in the intersection of cultural and pedagogical disciplines to explore how art education should adjust its objectives and philosophy in light of an ever more technological climate.

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APPENDICES

APPENDIX A SURVEY QUESTIONNAIRE

Survey research on young visual artists' opinion on the emerging AI-art technology

This research survey wants to explore the perceptions of young visual artists of advanced artificial intelligence technologies in the visual arts field. This survey belongs to a master thesis at Erasmus University in Rotterdam, the Netherlands.

This survey will take approximately 5-10 minutes to complete. Your participation will be entirely anonymous, and your data will not be shared anywhere outside this study for any other purposes. By taking the survey, you agree with the terms and give your consent to participate in this survey. Also note that your participation can be withdrawn with no conditions.

Thank you very much for your interest and participation.

Part I

1. What is your gender?
 - a. Female
 - b. Male
 - c. Others
2. Which year were you born? (Enter 4-digit birth year, for example, 1976)
3. What is your nationality?
4. Are you studying/Did you study at an art academy/college?
 - a. Yes
 - b. No
5. When did (will) you graduate? (Enter 4-digit year)
6. What is the highest level of education you have completed or the highest degree you have received?
 - a. Less than high school degree
 - b. High school degree or equivalent
 - c. Some college but no degree
 - d. Associate degree
 - e. Bachelor's degree
 - f. Graduate degree and higher

7. Did your parents financially support you during your study? Graphic design/visual communication
 - a. Yes
 - b. No
8. Is your parent involved in artistic profession?
 - a. One of them
 - b. Both of them
 - c. Neither
9. What is the highest level of education of your parent?
 - a. Less than high school degree
 - b. High school degree or equivalent
 - c. Some college but no degree
 - d. Associate degree
 - e. Bachelor's degree
 - f. Graduate degree and higher
10. Which country did you attend/are you attending your latest/current study?
11. Have you done another study in another country before?
 - a. Yes
 - b. No
12. Which of the following best describes your study/profession?
 - a. Graphic design/Visual communication
 - b. Illustration
 - c. Fine art
 - d. Painting
 - e. Game design
 - f. Industrial/product design
 - g. Fashion design
 - h. Photography
 - i. Animation/Movies
 - j. Other: ____
13. Have you tried/tested AI art programs or software?
 - a. Yes
 - b. No
14. Have you seen discussion around AI art?
 - a. Yes
 - b. No
15. Are you actively following other artists on social media?

- a. Yes
 - b. No
16. Are you currently employed? (Incl. freelancing)
- a. Yes
 - b. No
17. What is your approximate Net monthly income? (Euro)
- a. 0
 - b. 0-500
 - c. 501-1000
 - d. 101-1500
 - e. 1501-2500
 - f. More than 2500
 - g. I don't know.
 - h. I'd rather not say.

Part II

In this part, you will be presented some statements.

You can choose from 5 scales: **disagree** to **agree (1 to 5)**.

Please select the one that BEST align with your opinion intuitively.

- 18. I tend to use more analogue ways of creating art than digital ways.
- 19. When I work artistically, I tend to let the process guide me instead of setting clear goals in the beginning.
- 20. When I work artistically, I value more the concept than the end look or specific aesthetics.
- 21. When I work, sometimes I feel difficult to reach what I want with my current skill/technique.
- 22. I think that artistic skillsets are essential to artistic creation.
- 23. In the course of my education, the curriculum was orientated more towards the teaching of skillsets than creative thinking's.
- 24. I think art education should focus more on teaching the skillsets rather than creative thinking.
- 25. I am very satisfied with the quality of professional teaching I have received.
- 26. I believe that what I have learned in the education course has prepared me well for the workplace.
- 27. I think autonomous artistic world (art for art's sake) values ideas more than skills.
- 28. I think commercial business values skills more than concepts.
- 29. I am familiar with how AI technology generates artworks.
- 30. I sometimes think in-depth about the impact of artificial intelligence on the field of art.

31. AI art has its authenticity because it is not a copy or forgery of other art works.
32. AI art has creativity because it does generate new visuals.
33. AI art has artistic quality.
34. AI art is fake art.
35. AI algorithm has the potential to be equally competitive with human creativity.

36. I think discussions and debates around AI technology for the art field are still premature.
37. The real impact of AI technology on visual art practice has not been significant.
38. Seeing debates and discussions about AI technology on the internet makes me anxious.
39. I worry if AI technology will replace my professional position.
40. Seeing the development of AI can make me lose some of my professional motivation.
41. Once AI technology is fully matured, I believe that I cannot offer more than what AI can offer.
42. I believe that artworks created by AI need to be subject to certain controls to maintain the ecology of the industry.
43. The development of artificial intelligence technology can effectively free up some of the tedious mechanical aspects of creative work.
44. I am very excited to see the development of AI technology in artistic field.
45. I think creating artwork with AI technology has a prosperous professional future.
46. I can see those qualities in my profession/career that AI technology can never replace.
47. I think art schools should encourage more courses related to advanced technology.

This is the end of the survey.

Again, thank you very much for your time and participation! This survey is the first part of the research, in the second part, we want to recruit people who is open to an anonymous interview, to talk to us about their thoughts and opinions about AI art, art education, art occupation experience and artificial intelligence technology in general and many more. If you are interested, please contact me at: st3llashi@gmail.com

Have a lovely day!

APPENDIX B INTERVIEW GUIDE

Thank you very much for joining this interview for my master thesis research. The topic is on how you, as visual artists or designers, understand and respond to the AI technology's threats and opportunities in artistic production. The conversation will be for research purpose only and therefore will not be shared outside of this thesis. You are free to share all information and thoughts, as your name and identity will not be shared or published. If you wish to remove certain content of your speech, you can let me know and I will make sure they will not be used. And before we get started, I would like to ask if you give consent to audio recording of our conversation, for transcribing and analyses purpose?

- What is your name?
- How old are you?
- Are you currently studying?
 - If yes, what do you study?
 - If not, what did you study, and what profession are you currently taking on?
- Why did you pick your major of study?
 - What interests you about it?
- Can you describe a little about your study?
 - Where are you (did you) take your study?
 - What kind of work do you normally produce?
 - How did you like your study?
- In your education, do you feel a stronger emphasis on the mastering of skills or ideas and expressions?
 - Why do you think it is like that?
 - Did you feel comfortable with the way of teaching?
- Which aspect do you value the most while creating artwork?
 - Has it always stayed the same?
 - Anything change through time, or switch into work environment?
- What do you usually identify yourself as artist with, your style, the working method, anything?
- How do you see the difference between art and design?
 - Where do they overlap?
 - Where does the difference lie?
- Are you a person that is comfortable with keeping up with new technologies?
 - Examples?
 - Why?

- When did you first hear about AI art?
 - How did you feel about it?
 - The technology or the work of outcome.
- Have you tested AI art yourself? How was the experience?
 - Have you been using AI to assist you own work?
- How do you feel when you see the development of AI art recently?
- How do you understand the way AI works artistically?
 - Do you think there is certain creativity in the way it works?
 - How do you compare the work of AI to that of human?
- Do you think AI should be credited the author of the work they make?
 - Why yes, or why not?
 - How do you see the copyright issue with AI art?
 - What could be potentially the problems of AI-assisted artwork?
- Do you think AI produced art has authenticity?
 - Why?
- Do you think that AI is competitive to human in terms of artistic creation?
 - If not, what are the qualities that you see as irreplaceable?
- How would you react to many voices about AI replacing human artists?
- What do you think are opportunities that has been created by AI for the visual art field?

Before we end, I would like to ask if you have any questions for me, or if you still want to mention anything that we have not spoken about yet?

That would be the end of our talk today, I would like to again thank you again for you time and input. And have a nice day!

APPENDIX C CONSENT FORM FOR INTERVIEW

Project name	How do young generation of visual artists and designers perceive and respond to the impact of AI art as technological advancement?
Researcher's name	Stella Shi
Research institute	Erasmus University Rotterdam – Erasmus School of History, Culture, and Communication.
Research aim	This research is being conducted by Stella Shi. I am inviting you to participate in this research project about young generation artists and designers' perception of AI art technology. The purpose of this research project is to understand how AI as a technological advancement is being perceived by artists and designers of the young generation, what are the factors that affect their attitudes, and how do they understand opportunities and threats from AI.
Procedure	<p>You will participate in an interview lasting 45-60 minutes. You will be asked questions about your personal experience in creating art, artistic education that you have attended, or is currently attending, as well as your understanding and experiences with AI technology in artistic creation. Sample questions include: "How do you feel when you see the development of AI art?"</p> <p>You must be at least 18 years old and have had at least moderate degrees of experience and understanding of AI technology and relevant artistic background.</p>
Potential risk	There are no obvious physical, legal or economic risks associated with participating in this study. You do not have to answer any questions you do not wish to answer. Your participation is voluntary, and you are free to discontinue your participation at any time.
Compensation	Participation in this study does not guarantee any beneficial results to you, nor any monetary compensation.
Confidentiality agreements	<p>Your privacy will be protected to the maximum extent allowable by law. No personally identifiable information will be reported in any research product. Moreover, only trained research staff will have access to your responses. Within these restrictions, results of this study will be made available to you upon request.</p> <p>As indicated above, this research project involves making audio recordings of interviews with you. Transcribed segments from the audio recordings may be used in published forms (e.g., journal articles and book chapters). In the case of publication, pseudonyms will be used. The audio recordings, forms, and other documents created or collected as part of this study will be stored in a secure location in the researchers' offices or on the researcher's password-protected computers and will be destroyed within ten years of the initiation of the study.</p>

Right of withdrawal and doubts

Your participation in this research is completely voluntary. You may choose not to take part at all. If you decide to participate in this research, you may stop participating at any time. If you decide not to participate in this study or if you stop participating at any time, you will not be penalised or lose any benefits to which you otherwise qualify.

If you decide to stop taking part in the study, if you have questions, concerns, or complaints, or if you need to report an injury related to the research, please contact the primary investigator:

Stella Shi

Statement of consent

Your signature indicates that you are at least 18 years of age; you have read this consent form or have had it read to you; your questions have been answered to your satisfaction and you voluntarily agree that you will participate in this research study. You will receive a copy of this signed consent form.

For research problems or any other question regarding the research project, please contact the researcher at 613919xs@eur.nl

If you agree to participate, please sign your name below.

Recording
(if applicable)

I consent to have my interview audio recorded.

- yes
- no

Secondary analysis
(If applicable)

I consent to have the anonymised data be used for secondary analysis.

- yes
- no

Signature and date

Participant name

Researcher name

Signature

Signature

Date

Date

APPENDIX D OVERVIEW OF INTERVIEW RESPONDENTS

	Ji	Katy	Penn	Rena	Richard	Stefan	Vera	Yu
Age	28	26	20	24	29	26	23	23
Gender	Female	Female	Female	Female	Male	Male	Nonbinary	female
Major	Painting	Illustration/graphic design	Environmental design	Game design	Graphics design	Graphic design	Illustration	Visual design
Study country	CN	CN/NL	CN	CN/USA	NL	NL	NL	CN
State	unemployed	Employed	Student	Student	freelancer	employed	Student	student
Education orientation	Concept over skills	Concept was often limited; more emphasis was on skills	Focus on creative ideas, however, she considered it superficial as no guidance was provided	The USA has different approach compared to China.	Concept over skills	Concept over skills	No emphasis on skills, but it values nice finish and the overall presentation	Commercial-driven, often starts with the basic artistic skills from drawing
Family environment	N/A	N/A	Many family members are involved in artistic profession or habits.	N/A	N/A	N/A	Parents supports artistic creation with an open atmosphere	Father has interest in painting and therefore she wanted to be oil painter at first.
What they value the most in artistic creation	Emotional outlet	Personal style	Logic and set of rules; aesthetics	Both idea and technique	Versatility	N/A	Technique	Sophistication and the completion
Overall impression about AI	Indifferent as she thinks that the only thing matters is to create art she likes, regardless of technology	Concerned about AI replacing her job, also she felt unfair and angry towards certain Artists using AI. However, she thinks it is necessary to know what AI is capable of.	She seemed neutral, and the experience she had with AI makes she think that AI could be a useful tool if we can train it well.	She pays attention to legal copyright, legislation, capitalistic economy and a loss of individuality	Felt amazing as if he became the art director	Overall, he focuses on the authenticity of AI the most. He worries about the post-truth condition of our society.	Scared and jealous about AI. They also highlight much on the authenticity of artwork.	Positive and excited about using AI in her work. She thinks there are things to consider but AI will be a great tool.
Their idea on the authorship of AI art	AI is the author	N/A	The person who enters prompts	AI is the author	Find it hard to answer.	Maybe it should be AI.	All parties involved should be credited.	The person who enters prompts
Perceived primary opportunities	Endless inspiration from AI	N/A	More options for small-scale companies and clients	Efficiency for big commercial company	Brings out different job opportunities. Flexibility	More options for small-scale client	N/A	A very useful tool
Perceived primary threats	Unemployment Copyright	Unemployment Copyright Misunderstanding between social groups	Unemployment Should AI be allowed in education?	Unemployment Diminishing of individuality Spoiled by capitalit More laziness among artists	unemployment	The danger of a mixed reality	Higher competition Losing attention as an artist	Copyright unemployment

APPENDIX E QUALITATIVE ANALYSIS CODE OVERVIEW

Theme	Sub-theme	Code group	Description	Code Example
Internal negotiation	The emotional “self” and “otherness”	Differentiating AI from one’s own artistic identity.	Interviewees confront personal experience of AI art with their identity of being non-AI artists or designers. Their validation of their self-value as artists and designers is based on differentiating AI from how they have been trained.	Scared to try out AI art. AI art leads to self-de-valuation. Jealousy towards AI artists who gains much recognition. The success of AI art and AI artists is unfair. Fake art
		Urging oneself to adapt to change.	It is often expressed by the interviewees that they sense threats created by AI in their professional career, it often was accompanied by a will that one must keep up and accommodate to the change of the convention. Others also want to seize the chance to use AI as a supplementary tool to their work.	Fear of being replaced. Feeling lucky not being illustrator. Would like to learn more. AI is good help. Learning to use AI is learning its boundary.
		Relocating the purpose of artmaking.	Some interviewees reflect on their motivation and discussed the two modes of artistic creation: the job-purposively or the personal fulfilment. Most of them believes that the latter creates the essential meaning of artistic interaction.	Artmaking can be seen differently from a way of making money. The emphasis of “self” in making art. The experience of creating art cannot be replaced by an external machine.
External negotiation	Technical assessment	Understanding AI’s mechanism and limitations	Artists incline to focus on the technical specification of AI. Some showed deep understanding of how AI works and rooted their opinion in AI’s mechanics.	“AI flavour” Homogenous style and aesthetic AI lacks its own style. “AI aesthetics” creates alienation between artist and artwork.
		Contemplating AI’s artistic quality	Artists raised more questions as to evoke critical thinking on what art and technology mean to society and humanity. It entails topics on authenticity, authorship, art value and justice.	Art and design’s value lies in social experience. Art is human-to-human communication. Authenticity in AI artwork.
	Socio-cultural discussion	Defining AI’s social and cultural implication	Divergent ideas were expressed in terms of how the public and society will take on AI. Encompasses work opportunities, legislation of legal copyright and public perception.	AI brings increasing misunderstanding between public and artists. Certain profession face greater challenge. AI also creates new jobs. Post-truth society. How to protect human artists from copyright violations.