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Investigating Motivation and Usage of Text-to-Image Generative AI for Creative Practitioner

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Tiivistelmä — Referat — Abstract

This study researched the rationale behind creative practitioners for utilising or not utilising Text-to-Image Generative (TTIG) AI in their creative process. In addition, it also researches how the workflow of creative practitioners who are utilising this technology. A Reddit analysis of 331 posts and their comments and an online questionnaire with 92 participants is performed. The result showed that the rationale for creative practitioners not using TTIG is varied, including personal reasons, impact on the artist, ethical issues surrounding it, the AI-generated art itself, and their own creative workflow. On the other hand, motivation for using TTIG is mostly driven by the playfulness and usefulness of the system. Amplified by the benefit felt by the users for example source of inspiration, helping idea generation and exploration of new creative possibilities. There are mainly four types of workflow incorporating TTIG: to use it as reference only, use it as is, use it as a base, and use it as parts. We further discuss the implications of these findings and the author highlights the urgency of policymakers to create regulations safeguarding creative and their creations. The author also proposes to develop the system collaboratively with creative practitioners and the inclusion of AI in art education curricula.

ACM Computing Classification System (CCS)
Human-centered computing → Human computer interaction (HCI) → Empirical studies in HCI
Computing methodologies → Artificial Intelligence

Avainsanat — Nyckelord — Keywords

Text-to-Image Generation, Generative AI, Art, Creative Practitioner, Motivation, Usage

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Algorithms study track

Contents

1 Introduction

The growing influence of artificial intelligence (AI) has increased in various domains, including the field of art. Text-to-image generator (TTIG) models, such as Stable Diffusion [59], DALL-E 2 [49], and Midjourney [44], have gained prominence in the art industry. These models can generate high-resolution images quickly by inputting a text description called "prompt". The appearance of such platforms makes art more accessible to general people without any art-related background. AI-generated artworks are also shared on various online platforms. The works of AI, similarly shown in Figure 1, have won art competitions [37, 2], rivalling professional artwork. AI artworks have also been used in the opening sequence of a TV series [17], a cover for magazines [28], and even illustrations for children's books [5]. Asset creation also becomes more accessible with AI, such as [62, 31, 65] for video game assets.

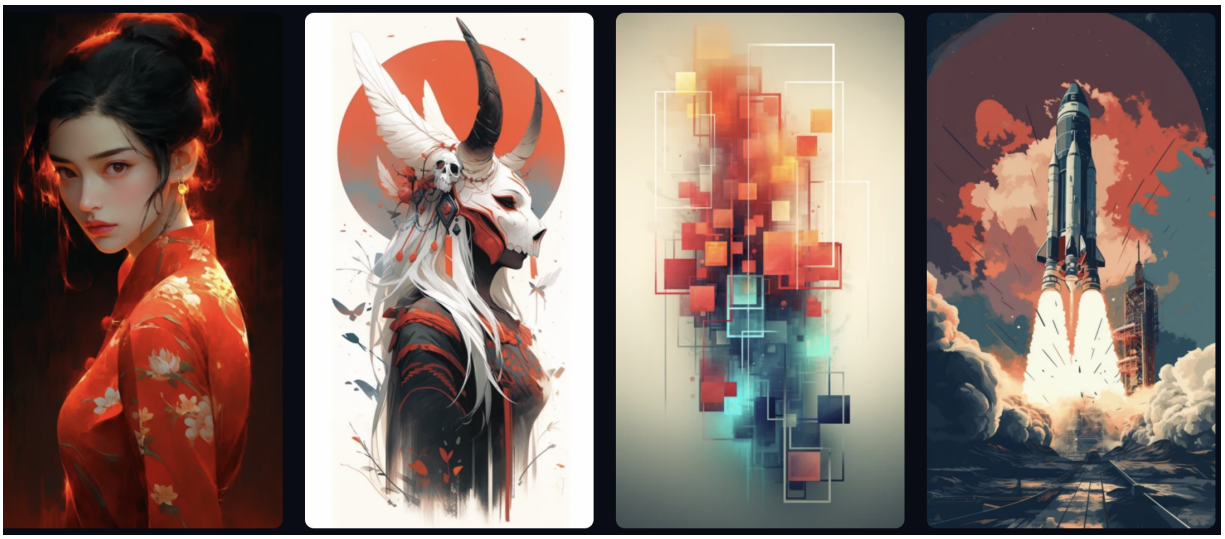

Figure 1.1: picture of AI-Art from Midjourney showcase - Accessed on 14th July 2023 [45].

Text-to-image generators are becoming a mainstream phenomenon in public because of their expanding capabilities and simplicity of use [55]. By July 2023, Midjourney Discord has 14.5 million registered members [4] from 2.5 million members in September 2022 [**tokeni**], increasing tremendously only in a few months. Approximately 275.000 images are generated daily by Midjourney. DALL-E 2 also has more than 1.5 million active members, producing 2 million images daily [52]. DALL-E 2 is used by more than 3000 artists in their creative workflow [51]. In October 2022, Stable AI, the company behind

Stable Diffusion, got 101M funding for their development [14]. These demonstrate that the acceptance of text-to-image generator models keeps rising with time and that technological development is inevitable.

The AI-based system has the potential to enhance and assist one's creativity [73]. TTIG offers a function to support idea generation by creating various images from a single text [32]. This feature is beneficial when users attempt to come up with as many ideas and potential solutions as possible in a brainstorming stage. The unpredictable result from TTIG also gives great surprises and inspires the users to yield new ideas. Yusa et al. (2022) showed in their research that AI could produce innovative and surprising kinds of art that would be challenging or impossible for human artists to produce [73]. Integrating AI in artwork creation allows artists to explore novel techniques and expand their creative boundaries.

Despite its benefit, using AI in artwork creation also sparked some controversies, for example, loss of jobs, the legitimacy of an artwork [73], copyright issues, and ethical issues such as consent of artworks used in the model [64]. The current phenomenon of artist mimicry, training a model to learn a specific artist's style, also negatively affects independent artists. Artists spend years developing their artistic style, and the model trained on their artworks does not compensate them. It keeps growing popular, and eventually, it interferes with an artist's capacity to market and promote their work to potential clients by replacing original art in search results [64], as shown in [43]. There are also some lawsuits against AI art generators for copyright infringement [35, 36].

Given the diverse perspectives on generative AI, it is essential to address the question of how it can coexist effectively with creative practitioners, regardless of whether it is perceived as a blessing or a curse. [30] shows the potential of sustainable collaboration between creative AI and the artist community. Such collaboration holds promise for pushing the boundaries of artistic expression while simultaneously embracing the advantages that AI brings to the table. Building on this concept, fostering a symbiotic relationship between AI and artists can unlock the most significant societal benefits when AI is designed to enhance and complement human creativity rather than replace it [3].

In order to facilitate this advancement, it is crucial to understand how creative practitioners perceive and utilise TTIG systems. By examining artists' and designers' perspectives on TTIG adoption, we can gain insight into the benefits, challenges, and ethical considerations associated with AI integration in the creative process. This thesis will focus on answering two research questions:

1. Why do creative practitioners utilise or not utilise text-to-image generator AI in their creative process?

2. How do creative practitioners utilise text-to-image generator AI in their creative process?

In a related study, Inie et al. (2023) conducted a qualitative survey involving 23 creative professionals to explore their perceptions, expectations, and concerns regarding AI [33]. However, their research focused on general creative AI rather than targeting TTIG AI. Additionally, Ko et al. (2023) conducted a literature review and interviewed 28 visual artists from various visual art domains about using LGTM in their creative work [38]. This study aims to complement it by giving perspective from both sides of the artist, the pro and against AI. Lastly, Vimpari et al. (2023) conducted qualitative interviews with game industry professionals in Finland to investigate their perceptions and adoption of TTIG [71]. While their study was comprehensive, it was limited to a specific industry, the Finnish game industry.

This work tries to augment previous research by covering both sides of creative practitioners utilising and not utilising TTIG in their creative process. It will also be more focused on the motivation for the one that does use it and how TTIG is utilised. By gaining insights into why users use TTIG, developers can design the system to meet those specific needs, improving user experience and leading towards a more user-centred design system [34]. Understanding creative practitioners' perceptions also helps identify potential barriers to adoption, and developers can take steps to address these concerns. Lastly, this research is contributing to a deeper understanding of the evolving role of AI in the realm of art creation.

This thesis comprises six chapters. The first chapter is the Introduction, which explains the motivation behind this study and the research questions being asked. The subsequent chapter, Background and Related Works, explores literature related to this topic and the research gap with previous studies. Moving forward, in the third chapter, Research Design, explain the chosen methodology for this research, which will use netnography and a questionnaire, as well as the rationale behind it. The following chapter is the Result and will present findings from both methods. The fifth chapter is the Discussion and Recommendations; the last is the Conclusion. The list of cited references and supplementary materials can be found at the end of this thesis.

2 Background and Related Works

2.1 Generative AI in Creating Arts

Generally, AI has been used in the creative industry in two ways: (1) to analyse existing art and (2) to produce new art [11]. Digital art collections are becoming more widely available online, opening up new opportunities for AI-based analysis. Technology such as Convolutional Neural Network (CNN) is used to classify and visualise an extensive collection of images. In addition to building practical and innovative tools to explore digitised artworks, AI technologies also support the creation of new knowledge in art history by analysing relations between specific artworks.

Meanwhile, the latter, which involves the production of digital images and artwork, has seen increasing interest along with the rise of text-to-image generation (TTIG) systems. TTIG systems have gained popularity due to their ability to produce artistic, high-resolution images based on text description, commonly referred to as prompts. These systems take textual input in natural language, such as a description or a set of keywords, and utilise deep learning techniques to synthesise visually compelling and detailed images [29, 67, 26, 21].

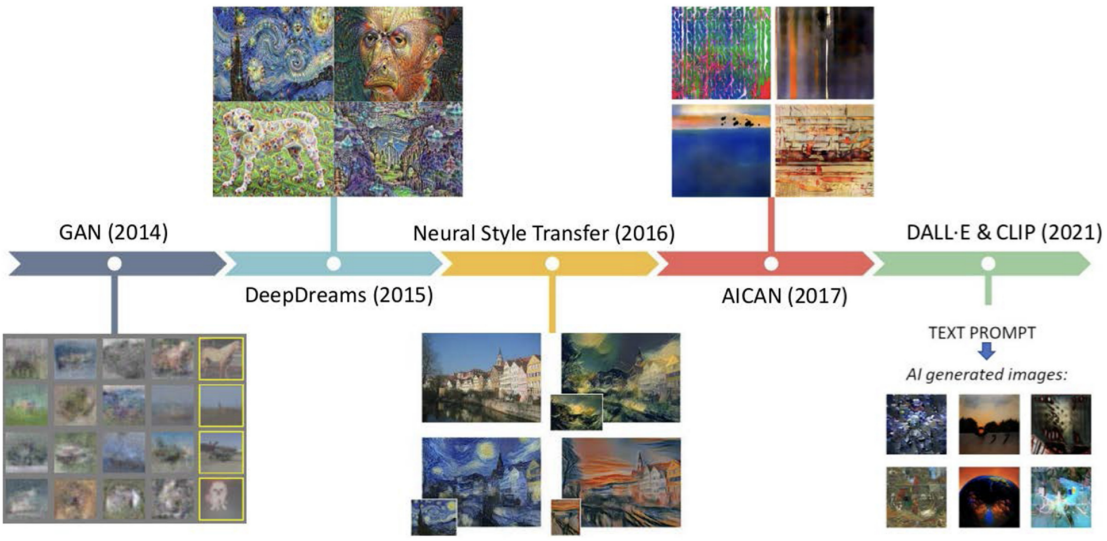

Figure 2.1: The development of technology in creating artwork. Figure adapted from [11].

The utilization of deep neural networks for the purpose of stylizing photographs and generating novel imagery commenced only within the past few years, with a notable acceleration in progress observed over the last half-decade [11]. Figure 2.1 shows the development of these technologies. The release of the Generative Adversarial Network (GAN) [29] in 2014 significantly hastened the integration of AI into creating visual art. GAN is a machine-learning framework consisting of two networks: a Generator and a Discriminator. By "competing" with each other similarly to a minimax two-player game, the generator aims to generate novel artwork that the discriminator can not recognise from the data distribution. A lot of artists have experimented with it, and the term "GANism" is becoming popular, referring to "the specific look and feel of GAN-generated image" [72]. A pivotal point of AI art is when a painting created by GAN titled "Portrait of Edmond de Belamy" was sold in an auction for the whopping price of $423,500 in 2018 [13].

Another significant AI technology is Google DeepDream, built by Mordvintsev et al. in 2015, using convolutional neural networks (CNN) to find and enhance patterns in an image [67]. Each layer in the CNN deals with a specific feature with a different abstraction level than other layers. DeepDream chose a layer to enhance multiple times, resulting in a psychedelic and hallucinatory stylistic effect. Later, this became a new form of art production. In 2016, Neural Style Transfer (NST) was introduced by Gatys et al. [26]. NST technique utilises CNN to separate and combine "style" and "content" from one artwork to another. Arguing that artwork created from GAN and CNN were not truly novel, Elgammal et al. built AICAN in 2017 [21], where they built over GAN and built an adversarial network that aims to generate creative novel artwork by maximising deviation from learned styles and minimising deviation from the art distribution. They also did a series of experiments that showed that AICAN-generated artwork is often undistinguishable from human artist work.

In 2021, OpenAI released the first version of DALL-E, trained using multimodal GPT-3 with 12 billion parameters combined [50]. GPT-3 is a transformer language model that accepts text and images as single input streams and uses maximum likelihood to generate tokens. The resulting images from GPT-3 will be ranked by CLIP [48], and out of 512 image results, the top 32 were taken. CLIP is a separate neural network model trained on many images and image captions to learn their relationship.

This development signifies the increasing mainstream phenomenon of AI art, as it enables a broader audience to engage in it without the necessity of a prior background in art or computer science. Later, in 2022, OpenAI released DALL-E 2, which uses "diffusion" to

learn the relationship between image and text, resulting in more realistic and accurate images with bigger resolution [49]. The diffusion model works by gradually denoising the sample from the distribution . Sampling starts with noise at x_t and produces gradually less noisy x_{t-1}, x_{t-2} until the final sample xx_0 is reached.

Today, a community of tools and resources has developed around text-to-image generation online, and a range of text-to-image generation systems are now accessible as open source in executable notebooks [55]. Besides DALL-E 2, other state-of-the-art systems are Midjourney [44] and Stable Diffusion [15]. Midjourney offers a subscription plan and is accessible without any installation through Discord [46]. DALL-E 2 is also accessible via the browser and provides a freemium subscription, meaning users can generate images with free given credits and need to pay monthly or annually for additional credits [53]. Meanwhile, Stable Diffusion [15] is an open-source program, and user can run the model on their own hardware for free. However, StabilityAI also released Stable Diffusion in their program, DreamStudio, which is accessible via browser, and users need to buy credits to use it [66].

The possibilities for creating images with text are limitless because it is free-form and open-ended. However, it also means that creating an image may need a lot of trial and error, and it may feel random and unprincipled. This issue is known as prompt engineering [58]. The ease of creating images with just text without artistic skill raised the question about the nature of human creativity with TTIG [55].

Data sources in these models come from a large volume of human-made art scraped from online repositories such as Pinterest, ArtStation, and Deviantart [55]. For example, LAION-5b [63], used in Stable Diffusion [15], is a dataset containing billion image-text pairs scraped from the internet. These datasets need to be improved in curation and governance, such as only removing concise and incorrect descriptions [63] and still containing copyrighted artworks. This dataset makes a model trained on a specific artist's style possible, and it is disadvantageous for the artist [64]. Artists do not get compensation for the artwork used in the training, and the occurrence of a large number of similar artworks with the artist could disrupt the ability of the actual artist to promote their work.

There are still many issues in TTIG, for example ethical issues, copyrighted artwork, and the legitimacy of artwork. Much media coverage covers this issue but is typically shallow, one-sided, and biased [71]. However, TTIG also brings benefits such as efficient support for idea generation and ability to inspire new ideas due to the unpredictable nature of TTIG [32]. This study will cover both sides, positive and negative, of TTIG from the artists'

perspective. It is essential to find a way where artists and AI can coexist harmoniously in art creation.

2.2 Human and AI in Art

Since the use of AI started to become a mainstream phenomenon in art creation, it raised many questions, such as what is the role of humans and AI in art? Who gets credit for AI-generated art? How AI and human artists can coexist harmoniously? Before answering all of those questions, we should understand the process of AI art creation and the stakeholders involved in each stage.

Today, AI art creation could only be done with human participation. According to Eshragian (2020), are three stakeholders involved in the process: the programmer, the trainer and the user [23]. The programmer is the one who originally built the network, the trainer is someone who re-trains the network, modifies the parameter and curate the training dataset, and lastly, the user is someone who uses the result of the system, either only by clicking a button or adding their personalised input. Eshragian's work is based on the GAN-generated artwork process, which is slightly different from human participation in the TTIG-generated artwork process.

Epstein et al. (2022) work is more applicable to the TTIG artwork process, where five stakeholders are in the process [22]. First is the collective of creators that upload their artworks online, and their works are used in training datasets. Second is the programmer who built the AI. Third is the AI algorithm itself. Fourth is the human artist who collaborates with AI to create art. Fifth is the curator, who chooses the image to be showcased to the public. This research also shows a variation in how people perceive AI as anthropomorphic. They could perceive AI as an agent or a tool depending on the wording, and it is related to how people allocate responsibility when creating an AI-generated artwork.

Individual who engage in creative activities or practices within various fields is considered creative practitioners, including designers and artists. Many artists' works are uploaded to the internet and used as training datasets without proper consent and attribution [64]. Consequently, numerous artists express discontent with the current state of AI [64, 43, 61]. With the increasing popularity of AI art, the term "AI Artist" has become more commonplace. Browne (2020) defined the most common type of current AI artist as "the Bricoleurs" [8]. These individuals repurpose existing technologies for creative ends, lacking technical literacy or mathematical expertise like a computer scientist and solely employing

AI for creative purposes. Numerous tutorials are available on the internet, enabling artists to incorporate AI into their creative process without delving too deeply into the technical aspects of the underlying technology.

I believe that artificial intelligence will not completely replace human artists. However, as AI continues to advance, it possesses the capability not only to produce more realistic output but also to emulate our cognitive systems and predict our sense of beauty. This warrants concern, as such developments could be exploited for capitalistic gains [18]. Newton et al. (2023) further contend in their paper that these AI art generators might be the cause of a grand shift in the free-lance art world, potentially leading to a transition from skilled to unskilled labour [47], owing to the simplistic nature of generating artistic artworks [55]. Similar issues akin to the industrialisation era may arise, including artists being gradually marginalised from the industry and an upsurge in plagiarism. Fears among artists regarding job loss due to the AI art revolution are justified, as indicated in [33].

However, these risks should not be taken as a discouragement against developing AI in the art industry. Instead, we should actively endeavour to improve these models, accounting for the possibility of potential damage at an early stage [30], as these models have already demonstrated significant potential for both business applications and democratisation. This study's focus on learning the usage pattern of TTIG by artists will help that agenda.

2.3 Creative Process

The journey of creating an artwork is called a creative process. With the emergence of AI-empowered co-creative tools in the market, Hwang (2022) explored how these tools can support the human creative process and how the current challenge of human-AI interaction is addressed [32]. Hwang summarised that there are four stages in how individuals solve creative problems:

The QA stage

In this stage, creators would try to understand the creative problem they will tackle. They would acquire the relevant information and set the goal. It may be different from case to case, such as a creator receiving instruction from a client or a creative problem can start from a broad and open-ended question, which may require finding knowledge to limit the scope before deciding on the goal.

The wandering stage

The creator will start initiating and playing around with the problem during the wandering stage. The brain will wander to find concepts and opportunities to tackle the problem. Even though it may not fully address the creative problem, it will fuel nutrients for more formal ideas later. Researchers also refer to this process as an incubation process, emphasising the concept of "letting an idea sit on". Taking a break is also included in this process, as it can help "spark creativity".

The hands-on stage

This stage is the stage where the creator would start to work on solving the problem. It could begin with generating many possible ideas and trying their hands on them. Several design processes referred to this as the brainstorming process. Later, the creator may evaluate, combine and select the most potential ideas to work on and improve.

The camera-ready stage

In the last stage of the creative process, the creator would evaluate and judge the potential ideas, select the best idea, and execute the vision into a presentable format. It allows them to "sell" their idea to the intended audience. The creator may employ professional skills or techniques to bring the ideas to life.

It is important to note that many stages may overlap, and users may travel through several steps repeatedly while returning to specific operations. In the paper, Hwang also divided the current AI-empowered creative products into four categories [32]. Text-to-image generator (TTIG) will fall into the Generator category because of its ability to produce outputs based on user guidance such as keywords. The characteristic of The Generator is far from human leadership as we possess limited control of the result. However, at the same time, it offers big surprises and can yield new ideas, thus introducing unexpectedness in the creative process. This characteristic made The Generator suitable for use in the hands-on stage, as it supports ideas generation when creators need to brainstorm many ideas and possible solutions. However, there may be another suitable purpose of TTIG outside of the hands-on stage.

2.4 Self Determination Theory

Motivation is a fundamental concept for understanding people's experiences and behaviours. The reasons why individuals engage with technology significantly influence how users perceive a product and how it impacts their overall experience. For example, someone using technology to pursue eudaimonic expertise, such as completing a task, will have a different experience than someone seeking hedonic pleasure [42]. Similarly, depending on the user's motivation, an individual playing video games for leisurely enjoyment will have a distinct experience compared to someone who plays professionally [20]. Understanding these various motivations is crucial for comprehending the diverse user experiences and optimising the design and usability of technological products.

Self Determination Theory (SDT) is a psychological framework that focuses on individual motivation and human well-being, developed by Deci and Ryan in the 1980s [60, 19]. According to SDT, humans are fundamentally motivated to fulfil their innate psychological needs: relatedness, competence, and autonomy through various behaviours [19]. SDT distinguishes between the "what," or the content of the goal, and the "why," or the regulatory process that underpins goal pursuit. SDT emphasises the importance of the motivational regulations underlying this behaviour (the "why") as it affects the quality of the behaviour, the extent of need satisfaction and the consequences on well-being (the "what"). Furthermore, [42] also reported that motivation is a crucial factor to consider in research on technology's effects on well-being.

According to organismic integration theory (OIT), a sub-theory of SDT, there are three broad types of motivation [60]: a) amotivation: characterised by lack / the absence of motivation, b) extrinsic motivation: the motivation affected by the factor from outside the self, thus it is not entirely self-determined, and lastly c) intrinsic motivation: the opposite of extrinsic motivation, where the motivation is completely self-determined, and sustained by experience of pleasure and enjoyment.

When an activity does not naturally evoke a person's interest or enjoyment, extrinsic motivation is needed. The range of extrinsic motivations is shown in Figure 2.2, where it was divided into four regulations [60]:

- External regulation: This regulation is the least self-determined. The drive to do an activity comes from getting a reward or avoiding a punishment. As individual takes up values, attitudes, or regulatory structures, external regulations may internalise

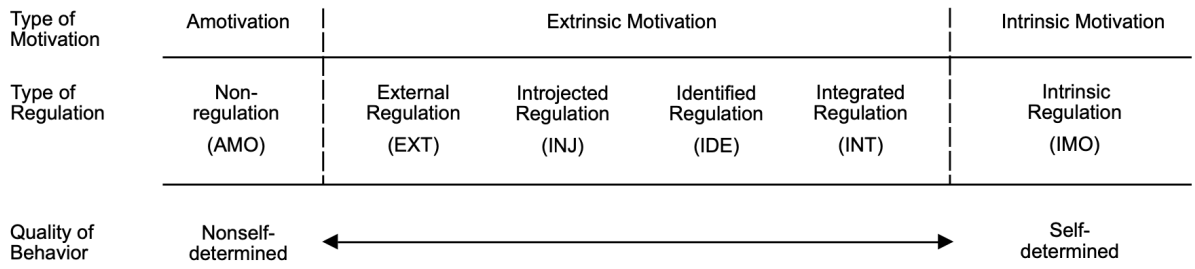

Figure 2.2: Different regulation of motivation in SDT, from least self-determined (left) to most self-determined (right) [9].

and no longer need a reward.

- Introjected regulation: The external regulation is partially internalised but not genuinely accepted as one's own, such as avoiding feeling guilt.
- Identified regulation: in this stage, one consciously values a behavioural goal, which is determined to have self-importance value, for example, tracking expenses in Excel.
- Integrated regulation: activity driven by this regulation is consistent with personalised values, objectives, and needs that have been personally acknowledged and are already a part of the self. For example, I use Latex because I am a scientist, not because of a particular interest or enjoyment.

According to SDT, the benefits of a behaviour's consequences decrease as it becomes less self-determined . Intrinsic motivation is expected to lead to the most favourable outcomes, followed by integrated regulation and identified regulation, a form of extrinsic motivation. Introjected regulation and external regulation are presumed to lead to adverse effects, and amotivation is the most negative outcome. Several studies proved that comparing self-determined types of motivation (intrinsic motivation, integrated regulation, identified regulation) to non-self-determined kinds of motivation (introjected regulation, external regulation, amotivation), the former produces the most favourable behavioural (e.g., better persistence), cognitive (e.g., enhanced concentration), and emotional (e.g., more positive feelings, greater well-being) effects [60, 19].

The questionnaire used in this study is the User Motivation Inventory (UMI), developed by Brühlmann et al. in 2018 [9]. The questionnaire is based on self-determination theory, and the details will be fully explained in Section 3.

2.5 Related Works

The mainstream phenomenon of TTIG has recently emerged within the last three years. Several related research studies have been newly published this year.

This research conducted by Inie et al. (2023) aimed to develop participatory AI for creative professionals to empower their future coexistence with AI [33]. They conducted a qualitative survey involving 23 creative professionals, seeking their perspectives on AI. The survey comprised open-ended questions to elicit detailed responses. Among the respondents, only three expressed ambiguous worries about AI, three had some degree of concern, nine reported no worries, and six stated they were not worried yet. Participants expressed concerns about AI beyond job displacement, including potential issues related to output quality, impacts on the creative process, and copyright concerns.

On the other hand, some participants voiced excitement about AI, citing its potential to enhance productivity, offer inspiration, and produce higher-quality output. Inie et al. recommended involving creative professionals in the development of creative AI. Although their study used a questionnaire, it focused on creative AI in general rather than specifically on TTIG, as in this thesis. Their respondents mostly came from a software-oriented background, prompting this thesis to include a diverse range of creative professionals.

The study by Ko et al. (2023) aimed to understand how visual artists adopted Large-scale text-to-image generation models (LTGM) in their creative works [38]. They conducted a systematic literature review of 72 systems/application papers and semi-structured interviews with 28 visual artists representing 35 distinct visual art domains. Their analysis involved open coding of generative AI usage from the literature review, followed by deductive coding during the semi-structured interviews using the identified codes, and then inductive coding to include additional codes as needed. The study revealed that LTGM could serve various roles in the creative process, including automating certain aspects, expanding creative ideas, and facilitating or arbitrating communication. However, visual artists found it challenging to effectively incorporate LTGM into their current creative processes. The study proposed design guidelines to address these challenges, such as domain-specific model customisation and enhancing prompt engineering for ease of input writing. While comprehensive, this study did not specifically focus on the motivation behind using TTIG. This thesis will complement it by exploring artists' motivation for using TTIG and incorporating perspectives from artists who use and do not.

Lastly, the most recent study by Vimpari et al. (2023) aimed to understand how profes-

sionals perceive, adopt, and use TTIG [71]. They conducted qualitative interviews with 14 Finnish game professionals and found that most participants expressed fascination or interest in TTIG systems. Many participants stated that their role had shifted from a craftsperson to a director, with AI taking on a more significant part. Concerns about job displacement were prevalent among the participants, with some admitting to fear while others anticipated similar sentiments from others. Participants perceived TTIG as offering increased capabilities and output quality, leading to feeling overwhelmed. Most participants used TTIG for inspiration and prototyping ideas, and they interacted with the technology through trial and iteration of prompts and outputs. However, the study focused solely on the Finnish game industry, and participants did not require prior experience with TTIG, allowing first-timers to participate. This thesis seeks to complement this work by explicitly examining the usage of TTIG by artists who frequently use it and delving into the motivations driving its usage. The thesis also encompasses artists from various fields, not limited to a specific industry.

In conclusion, these three studies are closely related to this thesis, and they provide in-depth insights through interviews, especially the works of Ko et al. [38] and Vimpari et al. [71]. To complement these previous studies, this thesis will focus on rationale behind both perspective of creative practitioner who use it and those who do not, and their type of motivations for using TTIG and workflow for creatives that utilise TTIG regularly.

3 Research Design

The research questions being asked are the "why" and "how" of an artist using AI in creating art, and we study these questions through mixed-methods research that combines qualitative and quantitative approaches through Netnography [39], which consisted of Reddit analysis and online questionnaire. Therefore, a more thorough understanding of the phenomena could be achieved. The qualitative data will be obtained by analysing posts and comments from Reddit forums and open-ended questions in the online questionnaire. Meanwhile, the quantitative data will be obtained from the User Motivation Inventory (UMI), developed by Brühlmann in 2018 [9] in the online questionnaire.

The target of this study is artists who are already familiar with text-to-image AI, including but not limited to Midjourney, DALL-E 2, and Stable Diffusion. We do not limit ourselves to only professional artists, as amateur or art students might have different perspectives as their experience level might affect the perception of the AI product.

The research stage is first formulating the research questions, followed by a literature review. Then, Reddit analysis was conducted to support the literature review and explore the artist community's current trends or perspectives about TTIG AI. Next, the Reddit data was analysed, and the result was partially used to guide the creation of the online questionnaire. UMI was also added to the online questionnaire to inquire quantitatively about the motivation for using text-to-image AI. Lastly, the result of the online questionnaire is analysed using inductive thematic analysis to answer the research questions.

3.1 Netnography

Netnography is a qualitative research approach that was developed by Kozinets in 1998, which name is the combination of "internet" and "ethnography" [39, 1]. Netnography adapts the traditional ethnography technique to studying the "net", that is, online communities, cultures and practices formed through computer-mediated communication [1]. Netnography is adapted from traditional ethnography and shares many similar characteristics. It is a flexible approach that allows scholars to explore rich cultural worlds. Netnography itself can be easily combined with other methods to complement the result. As opposed to traditional ethnography, there is no offline interaction involved thus, it

requires a new set of skills [39].

Today, social media is highly used by people, including the art community. Thus, online communities provide a vast amount of data archived through forums and search engines. These data might provide unprecedented information about the culture, values and structures of members of the online communities [39]. From a data collection perspective, netnography is far less time-consuming than traditional ethnography; however, it also needs a new specific skill related to online communication and deciding which online communities to study and which type of data to collect [1]. Lastly, netnography is far less invasive than traditional ethnography, allowing for researcher invisibility. Therefore, it could capture the explicit language of the online community without the risk of disturbance and will enable the researcher to study online culture in its manifestation.

However, netnography also has several limitations. In this thesis, the targeted participants are someone who identifies themself as an artist. In the online environment, confirming the credibility of someone being an artist is challenging, especially in Reddit analysis. Therefore, the result of the Reddit analysis will be triangulated with an online questionnaire to achieve a more comprehensive understanding of the phenomena of AI Art from the artist's perspective. Moreover, this technique also has an ethical consideration that will be explained in a later section.

3.1.1 Reddit Analysis

The chosen online community for this netnography technique is Reddit. Reddit* is an online social platform consisting of forums called "subreddit", and each forum focuses on a particular topic. In 2022, there were more than 100,000 active communities, with more than 430 million posts created [57]. Posts on Reddit are structured like a tree, with the main post as the roots and the people who comment as the branches. Each subreddit is user-created, and a moderator is also chosen to manage the said subreddit. Each subreddit also has its own individual rules.

Reddit has several advantages, such as it provides an open API that allows researchers to collect data easily and quickly. There are also many tools to support data collection on Reddit, such as Google BigQuery, PRAW (a Python package) and Pushshift API [56]. Reddit also uses long format posts compared to Twitter tweets with 280 character limit, therefore allowing deeper discussion. Meaning it also provides more data qualitatively

*https://www.reddit.com

Table 3.1: List of subreddits used as the source of data in this study. Taken on 9th May 2023

Subreddit Name	Member
r/ArtistLounge	124k
r/DefendingAIArt	12.9k
r/aiwars	2.3k

and quantitively. On the other hand, Reddit allows a variety of media in the post. Thus, it might require multiple methodological approaches to analyse the data. Next, creating an account on Reddit is straightforward, resulting in a large amount of anonymity and a one-time account. While it offers users more freedom of speech and the post becomes more organic, researchers might gather sensitive data.

Below are the chosen subreddits for this study. r/ArtistLounge was chosen because it is the largest subreddit used by the artist community in Reddit, and there are also ongoing discussions about AI Art and a specific mega thread about that. Meanwhile, r/DefendingAIArt and r/aiwars are subreddits that discuss AI Art and its implications.

The Reddit analysis followed a series of structured steps. Initially, the author collected data using PRAW (Python Reddit API Wrapper) [10], a Python package designed to simplify access to the Reddit API through predefined functions. Then, the author conducted searches within selected subreddits, employing queries such as "AI", “AI Art”, “Generative AI”, "artist", “creative”, or combinations thereof. The posts and comments collected were from 1 year before 9th May 2023. The results were compiled into a CSV file for further cleaning.

Subsequently, the author programmatically filtered posts based on specific criteria: removing data from deleted accounts and removing posts containing only images due to the oversaturation of text posts with memes and art, resulting in minimal discussion. Additionally, the author also removed posts with fewer than ten characters or fewer than one reply as they lacked significant discussion. To ensure data relevance, the author manually reviewed these posts.

In order to support answering the first research question about the rationale of creative practitioners for utilising and not utilising TTIG AI, a comprehensive analysis was conducted on the posts and comments. The analytical process was executed in a structured sequence. Firstly, the author categorised the users in the posts into two distinct groups: "creative” and “non-creative”, following a similar methodology established by Ko et al.

[38]. Next, for the ones labelled as “creative”, the posts were assessed as positive, negative or neutral sentiments towards AI in the context of art. Lastly, the author employed inductive thematic analysis [6] in each sentiment category by developing initial low-level codes and then clustering the related codes and searching for themes that could represent the cluster. These emergent themes may provide insights into the complex reasons and motives behind creative practitioner use or lack thereof of AI. A detailed explanation of the analysis procedure is explained in the later section.

3.2 Online Questionnaire

I conducted an online questionnaire with a User Motivation Inventory (UMI) and open-ended questions to encourage longer answers. The questionnaire was created using Microsoft Forms and circulated through the author’s network and social media. The call was posted as an invitation for artists, designers or art students who are familiar with Text-to-Image Generator AI and have opinions about them. However, since the author was not an artist and had limited network and connection to artists, the number of respondents who use TTIG AI was extremely few. Therefore, the author also broadcasted the invitation to fill out the questionnaire to the artists that use TTIG AI in social media, shown through the online galleries of the artist. The response was collected over approximately two months, from 15th July to 3rd September 2023.

The questionnaire commenced with a consent form, a vital initial step before respondents delved into the survey questions. Subsequently, it gathered demographic information from the participants, providing a foundational understanding of their backgrounds as an artist. The following section inquired about the participants’ familiarity with TTIG AI and their frequency of use over the past three months. Respondents who indicated infrequent or no use of TTIG AI were guided to the "not using" section, which featured questions probing reasons for non-use and any concerns regarding current TTIG AI technologies.

Conversely, those who reported regular TTIG AI usage proceeded to the “using” segment. This section included the User Motivation Inventory questionnaire and open-ended questions to uncover motivations and workflow considerations when integrating TTIG AI into their art creation process. Subsequently, both groups, irrespective of their usage frequency, addressed questions of the future implications of TTIG AI and their overall attitudes toward this technology. As a final step, participants were offered the opportunity to provide their email addresses for receiving research results or future research opportunities in this

topic study. For a comprehensive view of the entire online questionnaire, please refer to Appendix A.

3.2.1 User Motivation Inventory (UMI)

User Motivation Inventory (UMI) is a multidimensional motivation measurement tool based on self-determination theory, developed by Brühlmann et al. in 2018 [9]. It helps to deepen the understanding of why a user interacts with a technology. UMI consists of 18 questions to measure six distinct but interrelated motivational regulations: intrinsic motivation, integrated regulation, identified regulation, introjected regulation, external regulation and amotivation. It can explain why people experience different things when utilising a particular technology since it measures various motivational regulations. Table 3.2 shows the 18 questions together with the correlated motivational regulations.

Table 3.2: UMI questions with its correlated motivation measure [9]

Question	Motivational Regulation
I use [X], but I question why I continue to use it	Amotivation (amo1)
I use [X], but I wonder what is the point in using it	Amotivation (amo2)
I use [X], but I don't see why I should keep on bothering with it	Amotivation (amo3)
Other people will be upset if I don't use [X]	External regulation (ext1)
I use [X] because others will not be pleased with me if I don't	External regulation (ext2)
I feel under pressure from others to use [X]	External regulation (ext3)
I would feel bad about myself if I quit [X]	Introjected regulation (inj1)
I would feel guilty if I quit using [X]	Introjected regulation (inj2)
I would feel like a failure if I quit using [X]	Introjected regulation (inj3)
Using [X] is a sensible thing to do	Identified regulation (ide1)
The benefits of using [X] are important to me	Identified regulation (ide2)
Using [X] is a good way to achieve what I need right now	Identified regulation (ide3)
I use [X] because it reflects the essence of who I am	Integrated regulation (int1)
Using [X] is consistent with my deepest principles	Integrated regulation (int2)
I use [X] because it expresses my values	Integrated regulation (int3)
I use [X] because it is enjoyable	Internal motivation (imo1)
I think using [X] is an interesting activity	Internal motivation (imo2)
Using [X] is fun	Internal motivation (imo3)

UMI was also followed by several open-ended questions that will be explained in the next section. Based on the original paper guideline [9], the placeholder [X] should be replaced with the technology name, which is, in this case, TTIG AI. UMI used a 7-point Likert scale from 1 (strongly disagree) to 7 (strongly agree), and it was recommended to use the same scoring system to maintain comparability. The question order is also randomised to reduce the sequence effect. Lastly, the researcher could calculate the result by averaging the score of each subscale correlated to each regulation.

3.2.2 Additional Questions

Participants who rarely or never use TTIG AI in their art creation process will be guided to the "not using" section. Here, they will encounter two open-ended questions: (1) Please explain your reason not to use TTIG AI, and (2) Do you have any ethical concerns or considerations related to the use of TTIG AI? Please explain.

On the other hand, respondents who routinely utilise TTIG AI will be presented with a series of checkboxes designed to capture the benefits they perceive from its use, with choices informed by the findings of the Reddit analysis. Subsequently, the survey delves into their TTIG AI usage patterns through checkbox questions that explore their activities and include open-ended queries to encourage detailed responses about their workflow. It also seeks insights into the potential drawbacks of the current TTIG AI system. It offers an optional question regarding how they strike a balance between incorporating generated output and maintaining their artistic style, along with how they navigate potential ethical dilemmas.

While open-ended questions aim to elicit in-depth insights, the author has strategically minimised their number and replaced some with checkbox options. This adjustment aims to prevent respondent frustration and reduce survey dropout rates, acknowledging that excessive open-ended questions can be overwhelming. Lastly, the responses to these open-ended questions are analysed using inductive thematic analysis [6].

3.3 Analysis Methodology

The data from Reddit was analysed using sentiment analysis methodology and inductive thematic analysis. Additionally, the open-ended questions in the questionnaire are also analysed by inductive thematic analysis. Sentiment analysis is measuring the sentiment

– or any of the often co-occurring concepts such as emotionality, negativity, polarity, subjectivity, tone, or valence – of a piece of text [70]. There are two ways to do sentiment analysis, traditionally, such as manual coding and crowd-coding, or automatically using a program, such as dictionaries and supervised machine learning. The one used in this study is manual annotation. The Reddit posts and comments sentiments were evaluated with regards to the AI in the art context: (-1) negative, (0) neutral, ambiguous, or mixed, and (+1) positive. Negative sentiments towards AI are when there is an expression of the bad impact of AI, negative feelings towards AI, etc. Meanwhile, positive sentiments towards AI are expressed when they are defending AI, expressing benefits felt, expressing positive emotions felt, etc. And lastly, neutral or mixed is when they expressed balanced sentiments, or noncommittal.

The manual annotation is done by one coder, who is the author of this study, who is a computer science master's student with a machine learning major, who has knowledge and experience related to AI and is interested in the topic of AI Art. However, the author is not a creative practitioner of any sort and therefore not familiar with terms within the art field, but could maintain their neutral stance. However since this is done by a single interpretation of the author, it could lead to subjectivity and researcher bias, and manual coding does not have a high level of reliability [70], which is included as one of this study's limitations.

Meanwhile, thematic analysis is a process of identifying patterns within data. Following Braun and Clarke, there are 6 phases of thematic analysis: (1) familiarise yourself with the data, (2) generate initial codes, (3) searching for themes, (4) reviewing themes, (5) defining and naming themes and (6) producing the reports [6]. These steps are not linear and could be done iteratively. The thematic analysis done is inductive, meaning coding without any pre-determined codes or themes. Because the nature of this study is exploratory, the author deemed that inductive is a justified approach. The analysis was done using Microsoft Excel following the guide by Bree Galagher (2016) [7].

3.4 Ethical Consideration

When conducting research using public data, it is imperative to uphold user privacy. In netnography, two approaches exist: covert access and overt access [1]. Overt access entails making online communities aware of a researcher's presence, even allowing participation. Conversely, covert access, or lurking, involves the researcher remaining observant without

revealing their presence. While covert access offers the advantage of being unobtrusive, it raises ethical concerns. On the other hand, overt access is ethical but intrusive and may alter community behaviour upon the researcher's revelation.

The choice between overt and covert access remains a subject of debate. Some scholars argue that lurking is justifiable in specific contexts. Garcia et al. suggest that lurking can be acceptable, particularly if it aligns with how community members commonly engage [25]. In essence, the researcher experiences the community as a member would. Langer and Beckmann also endorse covert netnography as a suitable approach, especially when discussing sensitive topics, where participation may not be appropriate and could even pose risks [40].

In this study, Reddit is an open platform where discussions are visible to all, regardless of account ownership. While posting and commenting are restricted to registered members, creating an account is very easy, and pseudonyms are commonly used for anonymity. Consequently, the author believes Reddit is predominantly experienced through passive observation, with user participation occurring at their discretion. This perspective aligns with a report in u/truebirch, indicating that 98.1% of Reddit's registered members neither post nor comment on the content [69]. This statistic does not include non-registered members who can access content via search engines.

Additionally, the realm of AI Art remains contentious, with ongoing debates regarding its merits and drawbacks. As evidenced in social media and news [71], people who engage with AI-generated art often face public backlash, rendering opinions on this phenomenon sensitive. Thus, the lurking approach is justified.

Lurking enables the collection of more authentic and original data. Nevertheless, it is crucial to acknowledge that users may not consent to their data being used for research purposes. Reddit's Terms of Service, as cited in [56], neither explicitly prohibit data collection, making compliance insufficient for ensuring ethical research and data privacy. The author also recommends that researchers carefully weigh the risks presented to community members because of direct quotations and username inclusion.

Gliniecka also points out that even though Reddit data are publicly accessible and some studies are exempt from formal ethical review, an alternative and adaptable approach, such as the situated ethics approach, should be considered [27]. To uphold the community members' opinions with respect and protect their privacy, this thesis will exclude usernames and paraphrase the data instead of using direct quotations. This approach ensures user anonymity. The analysis will also primarily focus on discussion topics as a whole

rather than individual user posting.

Regarding sharing the online questionnaire on social media, the author seeks permission from subreddit moderators or groups unless the group explicitly serves as a platform for survey sharing. Participants will also be required to provide informed consent before answering any questions. The data will be anonymised and solely used for this study.

4 Results

4.1 Reddit Analysis

The total number of posts resulting from the keyword queries is 698, along with the comments. After that, the author manually read all the posts and removed all irrelevant posts, e.g., those unrelated to creative practitioners and AI in art. The total number of posts to be analysed is 331 posts. The author then divided the roles in the posts for creatives and non-creatives, and lastly did a sentiment analysis for the creatives' posts with the categories of positive, negative and neutral. Below is the graph for the following methodology.

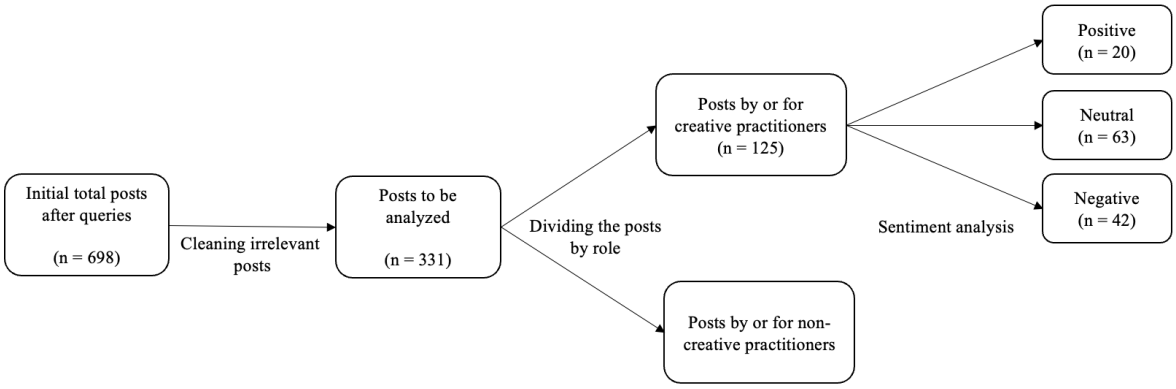

Figure 4.1: Reddit analysis process.

The author identified several types of creatives that created the posts. Out of 125 posts, there are digital artist (13), traditional artist (4), aspiring artist (4), AI artist (3), animator (3), game designer (3), concept artist (2), graphic designer (2), illustrator (1), art student (1), comic artist (1), 3D artist (1), designer (1), fine artist (1), industrial design (1), photographer (1), tattoo artist (1), and the rest are unspecified (86).

Regarding this thesis's second research question about how creative practitioners utilised TTIG AI in their workflow, the author identified ten related posts. Next, for each sentiment, a recurring theme in the discussion was captured from the thematic analysis and will be reported in the next section.

4.1.1 Positive Sentiments

For positive sentiments towards AI, five recurring themes are identified. The most frequent theme is that "AI is a beneficial tool" and positively impacts their creative workflow. Many users expressed that using AI sped up their development process immensely, and AI is a good tool for inspiration. Next is "AI brings them positive feelings", such as happiness, enjoyment and fun. Several posts are "defending AI, " for example, by explaining that machine learning is a human extension of creativity and that using AI requires skill to get the desired results and is not as easy as the general public perceives. "AI increased accessibility to art" is also expressed several times, and the theme "AI will not replace human artists" is also used. A more detailed report is in the table below.

Table 4.1: Positive sentiments in Reddit analysis

Theme	**Num. of Posts (Total: 20)**	**Quote Examples (paraphrased)**
AI is a beneficial tool	15	"AI has really made things easier for me as a photographer and artist. Stuff that used to take forever now gets done super quick, like from weeks and days down to just a few hours."
		"Using AI, I can occasionally create these references instead of actively seeking them out. Although Google search is fast and generally accurate, it doesn't consistently provide the specific information I need. AI excels at understanding various prompts and can produce four images per second, increasing the likelihood that I'll find something useful within a minute."
AI brings positive feelings	5	"As an AI art creator actively engaged in AI art communities,"

		"I've observed a shared sense of achievement and joy derived from generating something entirely original. This sentiment holds true even for the most rudimentary and uncomplicated AI creations, especially among newcomers to the community or those venturing into creative pursuits for the first time."
		"I opted for the basic option out of curiosity, and it turned out to be an enjoyable experience for me."
Defending AI	5	"Opponents of AI art often express opposition to machine learning in general. However, it's essential to recognize that machine learning is merely an extension of human learning—a tool crafted and utilized by humans. The underlying code is created by humans, and it is humans who operate the machines. If criticisms are directed at machine learning based on publicly available data, the same scrutiny could be applied to human learning processes."
		"Primarily, what some may dismiss as "just writing words" or, as I prefer to term it, prompt engineering, demands a certain level of knowledge to achieve satisfactory outcomes. This knowledge

		parallels that required in more conventional art forms such as painting, photography, and digital art. Familiarity with concepts like resolution, framing, art styles, and renowned painters is essential in both realms."
AI increased accessibility to art	3	"With the emergence of AI, the traditional skill barrier is now dismantled, and *taste* becomes the new crucial skill. The ensuing developments will showcase the pinnacle of humanity's rich creative heritage. It is crucial for our species to seize this moment, acknowledging the profound yearning ingrained in human nature, and to pledge to carry it forward into our future."
AI will not replace human artists	3	"In general, I find that midjourney is excellent for swiftly generating rough concepts. However, when the goal is to create art that is genuinely groundbreaking and distinctive, I believe a human artist still surpasses the capabilities of the AI."

Implicitly related to the perception towards AI, five posts expressed that pro-AI creative practitioners face judgement and anti-AI criticism. They seek a supportive platform for sharing and advice to navigate the issues. Several posts illustrate this theme:

> "God forbid I derive enjoyment from something. It seems as if I'm being accused of taking sustenance away from struggling artists. It's particularly irksome considering I'm also engaged in creating physical art."

Another user said:

> "Recently, I created a modest visual novel. Given my lack of artistic abilities and a monthly income of $60, which isn't sufficient to hire an artist, I utilized AI-generated art for it. However, when I shared it on different subreddits, I encountered opposition from anti-AI activists. Their comments, oddly resembling AI-generated responses, accused me of engaging in art theft and advised against creating games without the funds to hire an artist. They further expressed their disapproval by downvoting all my posts related to the project".

4.1.2 Negative Sentiments

Regarding negative sentiments towards AI, eight themes are identified in the posts. The most recurring theme is that "AI brings negative feelings", such as feeling anxious, frustrated, and bitter. Many users expressed that the rise of AI discourages them, especially if they are beginner artists and AI could produce much better art than them. Some of them also described the loss of motivation to continue pursuing art. The next theme regarding the "art career issue" is also expressed several times, such as fear of loss of jobs and AI art exploitation. Related to that theme, several users also believed that "AI will replace human artists", especially digital artists. The recurring theme is "AI impacts on art", as several users believed AI would devalue art.

The "art space" theme has also come up as several users expressed that some online art spaces are now full of AI art and deemed to have lost their quality. The following recurring theme is "AI art limitation," such as AI art being devoid of human emotions and having limitations in complex poses. Several posts regarding "ethical issues of AI" expressed that AI is stealing and some AI art is sold as genuine human art. Lastly, several posts about "Authenticity" discuss the confusion about the artist's skill and how AI art is presented as human art.

Table 4.2: Negative sentiments in Reddit analysis

Theme	**Num. of Posts (Total: 42)**	**Quote Examples (paraphrased)**
AI brings negative feelings (e.g. discouragement, anxiety)	24	"The name is NovelAIDiffusion, and it's gaining significant attention on Twitter currently. I can't help but feel somewhat disheartened having to contend with this AI. The image quality it can produce, especially in this particular style, is truly remarkable."
		"I'm fairly new to the digital painting realm, and I'm particularly captivated by creepy and dystopian art. Over the past three months, I've enrolled in courses, created some less-than-perfect pieces, experimented with various styles, and concentrated on enhancing my technical skills and understanding of drawing and painting. Ironically, during this period, AI art has become incredibly prominent, especially in creepy and dystopian art subreddits like Midjourney. Witnessing how anyone can provide a prompt and generate artwork that I might not be skilled enough to produce for years is genuinely disheartening."
		"This is fundamentally where I encounter an issue with AI art. Even if its models advance to the point where they can eventually deceive me into thinking it's an

		original work, the underlying sentiment remains unchanged. The moment I discern that there was no genuine thought invested in the creation, my sense of joy dissipates."
AI will replace human artists	7	"In recent weeks, I've come across news articles discussing the potential for AI to not only plagiarize from artists but also replace them in the creative process."
		"Are you open to another post related to AI? As someone with expertise in both STEM and Graphic Design, I believe that AI art has the potential to further alienate digital artists, ultimately elevating the value of traditional ones."
Career issues because of AI	9	"It's clear that if we reach a stage where AI can deliver comparable outcomes more efficiently and cost-effectively, significant job layoffs in the industry are inevitable. In a field already rife with malpractices and exploitation, the prospect of being replaced, akin to car factory workers during the automation revolution, becomes a looming concern."
		"Ever since AI became widespread on the internet, I've noticed a decline in clients within the art industry, especially for smaller artists like many of us. Additionally, there's been an influx of bots in this space,

		aggressively pursuing clients even if they lack the capability to fulfill the requested tasks. I can't help but wonder if I'm doing something wrong. Why is it that I'm struggling to attract any clients?"
AI impacts art	7	"In my perspective, AI undeniably drains art of its soul, value, and authenticity. Once the initial novelty wears off, art risks being devalued to an irrecoverable extent. What's the point if art becomes so widespread and easily replicable? It's akin to a scenario where if everyone were Usain Bolt, the Olympic running achievement would lose its significance."
		"There have always been individuals asserting that digital art isn't genuine art, often rooted in a misunderstanding of the creative process. Interestingly, computers can now generate art themselves. I foresee a new category of modern artists emerging with AI, potentially even those without traditional drawing skills. The ensuing discourse is bound to be legendary, as AI artists carve out their place alongside traditional and digital counterparts."

Art spaces	5	"Before you know it, individuals are selling AI-generated references and other items, a concept that I find perplexing. What's even more astonishing is that there are buyers for such products. To add to the intrigue, a major platform like Art Station not only permits this but also claims to have implemented measures against AI art to "protect" artists. It sounds like an enormous amount of dubious claims. While I'm not privy to the exact details, there's likely some behind-the-scenes dealings or arrangements happening."
		"With the dominance of AI, I find myself uncertain about where to seek the sense of community that DeviantArt (DA) once provided me. Other platforms either lack a specific focus on artists (Instagram and Twitter), are inundated with AI-generated imagery (ArtStation), or are relatively new and small, resulting in minimal traffic and frequent bugs (Artfol, Inkblot)..
AI art limitation	4	"Personally, I don't endorse AI-generated images. I believe they infringe on artists' copyrights and lack the essential human elements such as emotion, intention, and experience that art is meant to convey."

Ethical issues of AI	4	"If anyone is still fixated on the ethical debate surrounding it, it's time for both sides to mature and acknowledge the reality. There's no need to feign innocence when using 'Trevor Henderson Artstation trending soft shading no watermark' samples; it's essentially coasting on the efforts of a living artist. I'm genuinely weary of stumbling upon posts from individuals attempting to sell prints of their AI-generated T-shirts, only to witness a trio of oblivious commenters questioning, *ERM, ARE YOU OKAY WITH STEALING THAT?* Yeah, they are, you dummy. "
Authenticity	5	"What saddens me the most is that I've stopped visiting this site altogether. Distinguishing between AI-generated and human-created art has become practically impossible. There are instances where regular artists face criticism for being falsely accused of using AI, and vice versa. ArtStation, as a portfolio site, is supposed to serve as a platform for professionals seeking fresh talent and emerging artists, rather than becoming inundated like Instagram or TikTok."

On the other hand, two posts also expressed that they are taunted by AI art enthusiasts. The below post shows how artists are taunted by AI art enthusiasts:

> "I came across more instances of artists being taunted by tech enthusiasts, who assert, "Your art is so useless; AI might be more artistic than what you've created." Particularly on certain subreddits, there's a trend of AI defenders suggesting that artists should compensate AI generators for safeguarding their work. There's also ongoing discussion about artists relinquishing their craft and letting AI replace them, claiming ownership of what artists have created. This is precisely why I'm strongly opposed to AI."

Another user expressed that several "AI artist" also takes their art and finish it for them without consent as shown in the below post:

> "Their improvement is striking week by week. In a relatively short timeframe, perhaps a year or maybe three, they'll likely be creating art that is virtually indistinguishable from human-created pieces. I find myself questioning the purpose of drawing at all. AI artists can effortlessly take my works in progress (WIPs) and complete them using their machines. It seems there's no effective countermeasure, and this is evidently heading towards becoming the norm within a decade. The motivation to draw is dwindling, as it all feels like a futile effort."

4.1.3 Neutral Sentiments

Neutral posts are posts that have a balanced view regarding AI in art or non-committal posts, for example, only asking questions or seeking advice. This sentiment takes the most significant portion of the total posts, with five posts identified as mixed. The other 58 are truly non-comittal, meaning they do not contain any particular view regarding AI in arts and only ask questions. For these types of posts, the author specifically analysed and summarised the first tier of comments. There are eight themes in this sentiment category and an additional uncategorised category.

Motivation

There are three posts explicitly discussing how the rise of AI affects artists' motivation. Overall, the impact of AI spans a broad spectrum, from fostering adaptability and re-

silience to inducing demotivation. It seems to depend on individual perspectives, career aspirations, and how artists view the role of AI in the art industry. Here is an example that some feel that nothing really changes with AI:

> "Personally, my motivation has not wavered. However, I acknowledge that I approach art as a hobbyist with clear goals to achieve. My path is centred on continuous learning, and AI art isn't altering that trajectory for me. I recognize that if I were deeply involved in the small commission world or had aspirations for a professional career in digital art, my mental state might be less stable. I empathize with those artists who face these challenges."

Some expressed excitement:

> Conversely, the creative side of me is genuinely thrilled by the potential of this technology, and I am strongly tempted to incorporate it into my artistic process.

Meanwhile, some people feel totally demotivated:

> "Feeling demotivated and anxious. As a digital artist, I've long grappled with the perception that "the computer does it all for you," and AI only exacerbates this attitude. Additionally, there's a general concern that it might lead to a decline in commissions for artists (my own commissions have dried up this year) or an expectation for lower commission prices. While I don't believe it will completely reshape art, especially with established artists, the impact on lesser-known and emerging artists is a source of worry."

Art

Four posts are discussing about whether AI art could be considered art, and how much time and effort it could be considered art. The answers vary, from AI-art considered as a valid form of expression to people questioning the effort, uniqueness and intent behind such creations, with more people being the latter. Some people also express indifference to the debate altogether. An example of a comment expressing that AI art is still considered art:

> "Certainly, why not? Aren't photographs considered art? The camera is a tool we use to create images, requiring a distinct set of learned skills compared to painting or drawing (although there are shared principles such as composition and color theory)."

Meanwhile, some people disagree:

> "As an artist, I don't fully agree. I also see it as a kind of computer-generated image. There seems to be little to no effort put into those pictures."

Some people are expressing, that time and effort are not really the measure of what be considered art, but the artistic intent is, whether it is emotion or a story, as shown in this example comment:

> "In my view, art begins where artistic intent begins. Whether the process involves simply typing "sexy woman cleavage" into some diffusion software and clicking "generate," it is still considered art. However, a shallow, low-brow work like that would understandably be seen as low-effort and low-quality. While we can assess the results, it's fair to critique the work without denying its classification as art."

Art Spaces

There are four posts discussing art space. The first post discusses DeviantArt*, a massive online art community, using images on their website to train AI. The second post discusses how AI artists need a safe discussion space. The third post discusses how Kofi†, a tip-jar donation-type platform for creators, bans AI and lastly, the fourth post discusses about new art website called Cara app.

In the first discussion about DeviantArt moves, there is a diverse reaction from anger and disappointment to acceptance as a consequence of posting content online. Most creatives expressed disagreement with the moves touching issues on data ownership and platform ethics as shown in the below example:

*https://www.deviantart.com/
†https://ko-fi.com

> "I just deleted everything I had on there. It's disheartening. I had content spanning four years, and now I mostly post on Tumblr instead. However, the point remains. As I went through my older, less polished work, I noticed a "style" that I don't want to risk being copied by a bot. Initially, I was using the platform more for appreciation than showcasing my own art. It saddens me that moving forward, I won't be certain whether the art I admire is from a real person or not if I decide to continue using the site (which I'm unsure about at this point). The most heartbreaking aspect is the potential for people who have passed away to have their art stolen, given the opt-in nature of availability."

In the second post, most people discussed the need for a safe space to talk about AI art without getting any backlashes, as in the context of the post, some of the current art forums are banning AI art. Similarly in the third discussion, they deplore Kofi about their moves to ban AI as they claim it discriminates against AI art creators. Lastly in the fourth post, most people expressed that they like it so far as it is an artist-focused social media that could ban AI as shown in this example:

> "I just downloaded it a few hours ago after hearing about it on Twitter. I'm enjoying it so far, especially the layout, which is easy to use. What appeals to me is their prohibition of AI usage. I'm hopeful that it doesn't face the same fate as Artfol and Bubblehouse, both of which encountered issues, with one plagued by weird bots and neither gaining significant traction. I think the challenge for these apps lies in their narrower appeal, targeting artists specifically. To engage with these apps, you either need to be an artist or someone who appreciates art enough to download a platform dedicated solely to it. Here's hoping the app succeeds."

Ethicality

is one of the main topics mainly discussed in this sentiment with eight posts. Mainly it discussed the ethicality of using likeness in AI, for example making prompts to follow a specific artist's style, a discussion whether AI is counted as stealing or copying, and also how to use AI ethically in art. Most people comments argue that mimicking an artist's style through AI is comparable to how an artist learns from others in the traditional art world as shown in this example:

> "It's comparable to how individuals can justify incorporating the stylistic likeness of an artist in non-AI art, a practice that was never considered problematic until AIs entered the scene. Consider how many Hollywood composers adopt a style reminiscent of Hans Zimmer because it's popular. There's no rational basis for suddenly deeming this unethical just because machines have also achieved this capability."

Other sees that as an ethical issue, especially when AI is trained specifically on a single artist's work without permission, and potentially infringing on the artist's unique expression and economic value:

> "Imitating a style is generally frowned upon in the art community, although it's seldom discussed extensively due to the inherent difficulty for a human not to draw influence from various sources. Even if heavily influenced, a human artist's work tends to be distinct. On the other hand, AI models are often trained on a specific artist's work to precisely replicate it, a practice deemed morally wrong. Essentially, it's seen as stealing the style cultivated through years of hard work and practice. Utilizing AI to produce copies is viewed as unfair, not to mention the potential loss of commissions for the original artist. When someone includes a specific artist in their prompt, it's essentially saying, "I love your work and want it, but I don't want to support you through a commission or invest the time to learn the craft myself." This is perceived as both lazy and greedy."

Meanwhile, from a copyright perspective, using someone's name in the title of AI-generated art without the artist's permission is still not clear, as the style is not copyrighted. Copyright protects the artist's work and not the style, and the current AI-generated work is not protected by copyright either [12]. The gray area is to use a copyrighted work to be trained on AI without permission. Below example is one of the comments arguing about this:

> "Style, in itself, is not copyrightable, given the intricate web of influence in the artistic world where artists often draw from various stylistic elements. The question of who owns the copyright on AI-generated art is currently uncertain and might remain so until legal precedents are established. One argument could suggest that the developers of the AI software own the copyright. Alternatively,

> some may argue that the work itself is not copyrightable. The legal landscape surrounding AI-generated art is still evolving."

In the light of a discussion whether AI is “stealing” art is primarily rooted in concerns about training methods, misrepresentation, plagiarism, and the potential impact on the artistic community. Some frustration expressed about its current application and misuse is that it may use copyrighted material to be trained on, and people taking credit for AI-generated art.

Artist

There are nine posts regarding AI discussion with respect to artists as a person, mainly they are discussions about how to protect art and artists and advice for artists themself. Some noteworthy discussions about protecting art and artists are discussions about GLAZE [64], what to do to protect your art and a call for support for movement watermarking AI-generated art.

By the time of discussion, GLAZE had just been released. GLAZE is a platform created by the University of Chicago that works by layering the artwork with some invisible layer to the eye but is able to appear in a completely different style to AI [68]. While some see GLAZE as a potential solution to protect artists’ work and show support to use it, there is skepticism about its long-term effectiveness and a call for broader systemic change in how art and copyright are handled in the digital era. One of the comments that show support is below:

> "I’m likely going to use it. The persistent chorus of people proclaiming, "don’t use it, the battle is already lost, AI has already won, give up before you even try," seems like a psychological operation (psyop). There’s nothing preventing the developers of Glaze from refining the design to enhance its resistance to "attacks," similar to how a programmer working on a firewall might do."

Many suggestions were expressed on how to protect your artwork are being careful about posting on social media, reminder of the value of human-created art, flexible ways to use AI such as learning and as inspiration, and doing protective measures on your art such as putting watermark, tagging, copyrighting work, or use GLAZE.

And lastly, a call to support a movement of watermarking AI-generated art called APART*. The purpose is to differentiate artwork created by human or by AI. It comes from the concern of increased difficulty of detecting noise remnants in AI-generated images and detectors don't work all the time. This movement is working by pressuring generative AI companies to watermark their content, and for open-source model, by pressuring the host to give API for watermarking. The responses from the audience are positive, mostly supporting transparency and acknowledgement of AI involvement in art creation. Some expressed scepticism about the practicality and potential consequences for people who only use AI as part of their work. An example comment from this discussion that supports the movement:

> "I support movements addressing this issue. I already have a disdain for AI-generated images (considering it not art), but if it's going to persist, then there should be watermarks on such creations."

And the one against it:

> "At a high level, this is impractical. The software in question is entirely open source, and anyone can modify it as they see fit. Requesting standardized watermarks is akin to asking all Linux computers to organize the information on their hard drives in a specific manner. The history of Linux cannot be altered, so there will always be copies of the operating system without those changes, and individuals modifying those copies won't incorporate the requested alterations."

The discussion about advice for the artist is mostly to encourage artists to work more on a niche skill set, remember the reason why you make art in the first place and focus more on unique human skills. Along with the continuous encouragement that AI will never replace human artists. An example of this advice is shown below:

> "Page builders have never rendered web developers obsolete and are unlikely to do so. Similarly, AI art can serve as a tool, but technology can never entirely replace human creativity. A thriving business will eventually outgrow its generic Canva logo, and interestingly, some digital artists initially uploaded that template. As someone engaged in various art forms, discovering your niche is a challenging yet immensely rewarding problem to solve."

*https://www.ethicalgo.com/apart

Jobs

The discussion regarding jobs is expressed in nine posts. The discussion with the most comments is about the impact of AI on professionals. The next noteworthy discussion is about future jobs after AI and jobs in the art field that are the furthest away from AI. For the first discussion, the answers vary, but mostly it is not affecting at all or at least not yet. Some express that the book cover industry and portrait work started going to AI. Concern for newer artists is also expressed several times, as it is agreeable that AI will only have a minimal impact on established professionals. One example comment from this discussion is:

> "While I'm not exactly a professional, I make a living through freelance commissions, mainly focusing on DnD characters and fantasy themes. Surprisingly, the advent of AI art hasn't impacted my income or client base at all. Initially, I anticipated it would, but those who commission custom art seem to do so because they appreciate the diverse art styles created by individuals. AI art may be visually appealing, and the bot excels at rendering, but it essentially replicates real art crafted by human artists and lacks genuine value. Most professional artists I'm acquainted with share a similar lack of concern. AI lacks the ability to think, and when it comes to character design or environmental concepts (like concept design), thoughtful and precise input is essential. Mere aesthetics aren't sufficient; the art must be useful and accurate. Consequently, human artists are likely to remain the norm in the industry"

In the discussion about future jobs since the coming of AI, surprisingly some people express skepticism instead about AI will replace human artists completely. There is an emphasis on human creativity and personal expression. The discussion also revolves around the challenges AI-generated art will face regarding copyright protection and commercial visibility. Some people also express openness to incorporating AI into the creative process, all while acknowledging the limitations of the current AI technology such as AI struggles with finer details and specific requests. The below comment expresses this theme:

> "I believe AI has significant limitations, and we are far from being replaced. To illustrate, when a friend requested a Byzantine icon of Carlos Acutis, I experimented with AI to see what it would produce, and the result was utterly

> absurd. Additionally, I heard a recent complaint from someone who commissioned an artist for an image of a dark-skinned character. Upon requesting a color change, the returned image was entirely different. It seems the artist might have relied on AI but struggled to make it generate the same image with a single detail change. AI excels at generating content based on what it has learned, but we haven't yet taught it to be highly effective in handling finer details."

Traditional Art

There are two posts talking about how traditional arts will fare against AI art. Opinions vary from the belief that the continued value of handmade art will be stable and not affected in any way to the increased appreciation of traditional art due to the rise of AI-generated content. There is also recognition of both the limitations and the potential for AI to influence the perception and market for traditional arts as shown in the below quote:

> "The relevance of fine art photographers in a world where almost everyone has access to a camera and identifies as a photographer is a nuanced question. Similarly, one might ponder whether traditional musicians hold more significance than those relying solely on digital methods of music production. The comparison extends to ceramics versus mass-produced factory-made pottery. This question seems applicable to anything that has been mass-produced. In this context, anything original and handmade tends to retain its value, while machine-made items might be practical but often lack the same level of value or sentimental importance."

Workflow

There are six posts that are discussing about how to incorporate AI into their workflow, from various types of creatives. These will be explained together with other related posts in the next section.

Uncategorised

There are 13 posts in this special category and each of them is the only one that discusses a specific theme. Some noteworthy discussions include a discussion about AI art as a third

category of art in addition to digital art and traditional art, a discussion about redefining AI Artists, and a discussion about getting falsely accused of using AI.

4.1.4 Posts discussing incorporating AI into workflow

There are ten posts that discuss how to incorporate AI into workflow. From these posts, one has negative sentiments, three has positive sentiments, and six has positive sentiments. People answer that the most used way to incorporate AI into workflow is to use it as an inspiration or reference. Some people also said AI is good at generating thumbnails in the brainstorming phases, as AI is able to produce multiple designs in a short time, especially for designers, and traditional artists. AI is expressed multiple times to help speed up the creative process. AI is also expressed to be good at augmenting an artist's skill such as generating non-main parts of the image that many people struggle with: backgrounds and composition. The below posts expresses this:

> "AI could potentially be useful for basic thumbnailing or testing color palettes. There are likely practical industry applications that could benefit from its capabilities in these areas."

> "Absolutely, using references extends beyond just structural elements like anatomy or architecture. References can also be employed for aspects such as composition, colors, mood, and more."

> "In certain situations, AI can serve as a convenient tool for generating filler content. For example, in escape room construction, a wall full of mad scientist notes, drawings, and scribbles was needed. While the task could be done manually, the individual chose to use AI to generate 40 images in an hour, saving a significant amount of time. This approach proved efficient and allowed the person to allocate their efforts to other tasks, especially considering budget constraints that limited the affordability of hiring an artist for such a project."

Other people also mention that the result from AI could be used as a base and combined with other AI tools such as img2img, photo bash, ControlNet or others as shown below post:

> "For backgrounds that you want to have control over, you can explore segmentation controlnet or MLSD. With the former, you draw vague shapes in

different colors corresponding to objects (e.g., brown for the floor, gray for the wall, another color for the door, and another for flowers). The AI will then place the chosen object or background accordingly. With MLSD, you draw straight lines to provide the model with directions for creating the background. Essentially, you create a rough sketch, run it through the process, and it guides the AI. Combining both methods is also an option for enhanced control."

Certainly, some people also express the current limitation on copyright issues, especially if you want to use AI in your career. Current AI-generated artworks can not be copyrighted and using AI trained on others' artwork may have copyright infringement. As shown in these examples:

"There are rumors circulating that agencies have included clauses in their contracts stipulating that AI cannot be used, citing concerns related to copyright issues."

"Indeed, until copyright issues are resolved, claiming full copyright of the final piece created using AI remains uncertain. The legal and intellectual property landscape regarding AI-generated content is still evolving, and clarity on these matters is essential."

4.2 Online Questionnaire

The total number of responses from the online questionnaire is 98 responses. After data cleaning based on Curran's paper [16] and the original questionnaire paper [9]: the number of people that do not do this in one session is one, not pass long-string analysis is one, does not fulfill the criteria is one, and full of nonsense answer is three. The final number of responses to be analysed is 92. The list of the respondents can be seen in Appendix B.

4.2.1 Demographic Review

There are several demographics data collected in the questionnaire. Respondents were from various ages mostly from 18-25 years old (55.3%). 55 respondents identified as female (58.5%), 36 as male (38.3%) and 3 respondents preferred not to say (3.2%). The

most common type of artist is digital artist (43.4%), along with similar kinds such as Illustrator (35.8%) and Graphic Designer (29.3%). Almost all respondents are multiple types of artists. Most respondents are professionals with a percentage of 48.9%, and the next is hobbyists with 34.8%. 64.1% of respondents pursue art/design as a full-time career. The years of experience were varied, distributed as <1 year (14.1%), 1-3 years (34.8%), 3-5 years (17.4%), and >5 years (33.7%). Lastly, 57.6% of respondents have formal art education/training and 47.8% are actively selling/showcasing their artwork through online / galleries.

4.2.2 Questions related to Text-to-Image Generator AI (TTIG)

Following demographic questions, respondents were asked questions related to TTIG AI. In terms of familiarity, respondents mostly answered familiar, distributed as somewhat familiar (16.3%), familiar (41.3%), and very familiar (34.8%). Only 7.6% answered that they were not familiar at all. The next question has a very balanced respondents with 51.1% having personally used TTIG, and 48.9% never using it.

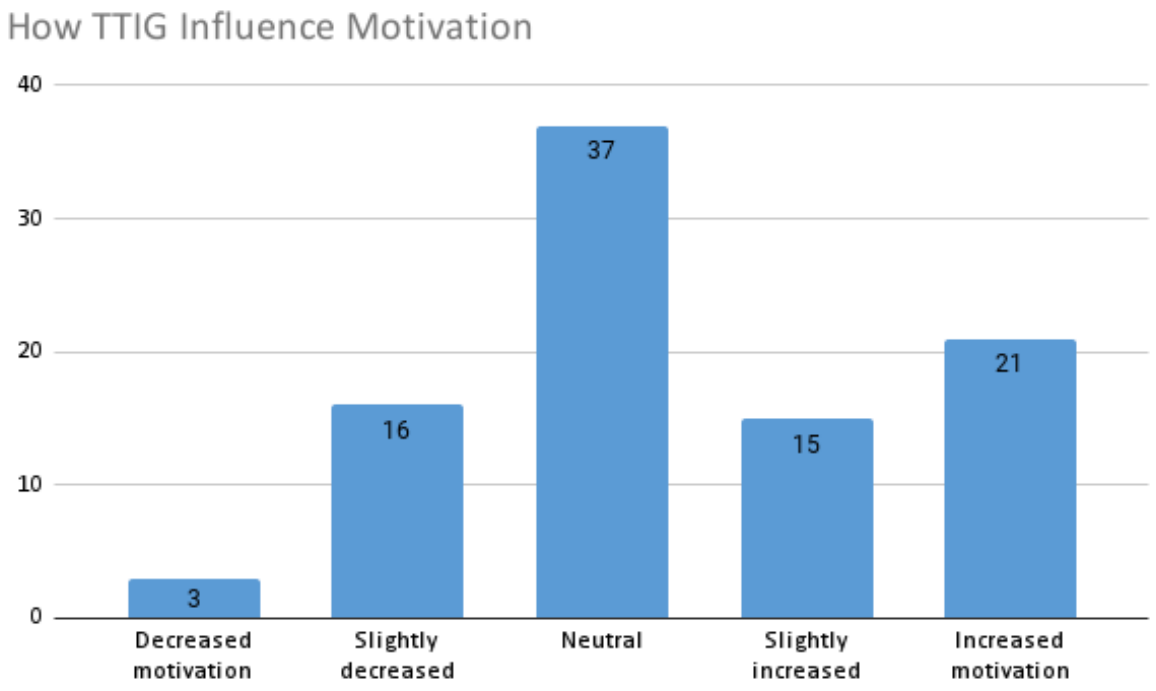

Figure 4.2: How TTIG influence motivations?

As shown in figure 4.2, respondents are also asked about how the occurrence of TTIG

affects their motivation as a creative. 37 respondents answered neutral (40.2%) meaning it does not decrease nor increase their motivation and 36 respondents answered increased motivation (39.1%). Only 19 respondents (20.6%) expressed a decrease in motivation.

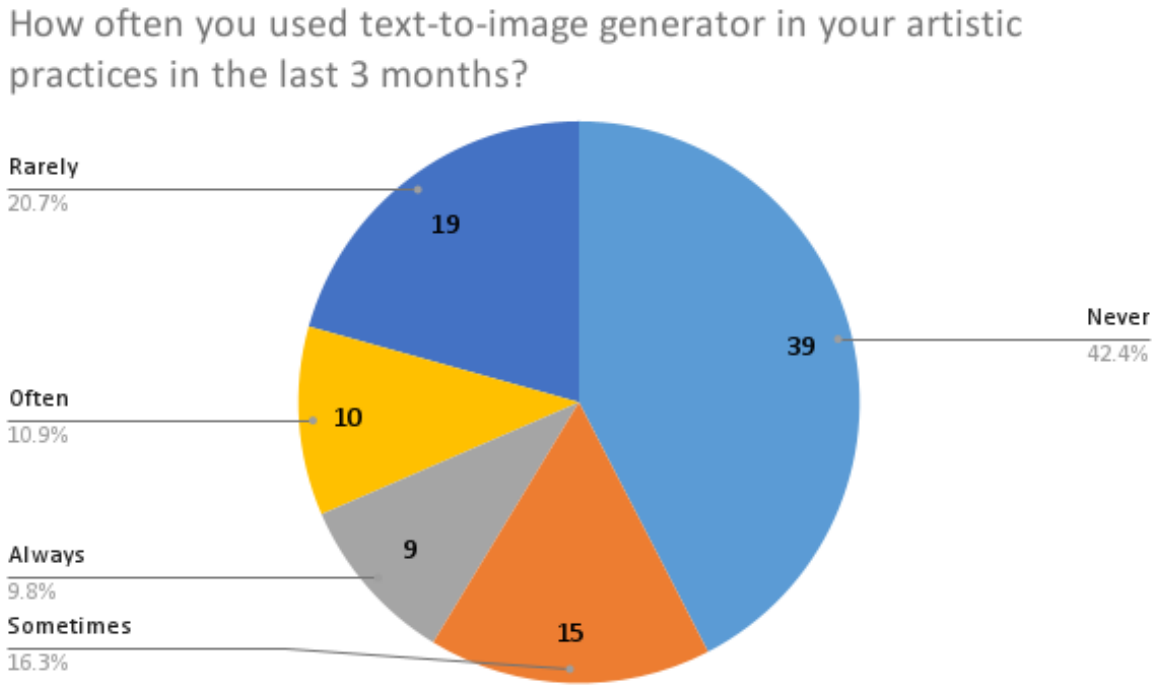

Figure 4.3: How often has TTIG been used in artistic practice in the last three months?

In terms of frequency in the last three months, Never (42.6%) and Rarely (21.3%) make most of the numbers. 16% of respondents sometimes use it, 10.6% often and 9.6% always. Based on the difference in the frequency of use, the respondents answered different sets of questions as corresponded to the first research question of why or why not creatively utilise TTIG in their creative process. 58 participants (63%) who answer "never" and "rarely" would be directed to the "not using TTIG" sections and the rest 34 participants (37%) would be directed to "using TTIG" sections.

Despite the significant gap number between the creatives who use TTIG regularly and not, the overall impression is surprisingly quite balanced towards each sentiment, with 30.4% negative, 35.9% neutral, and 33.7% positive.

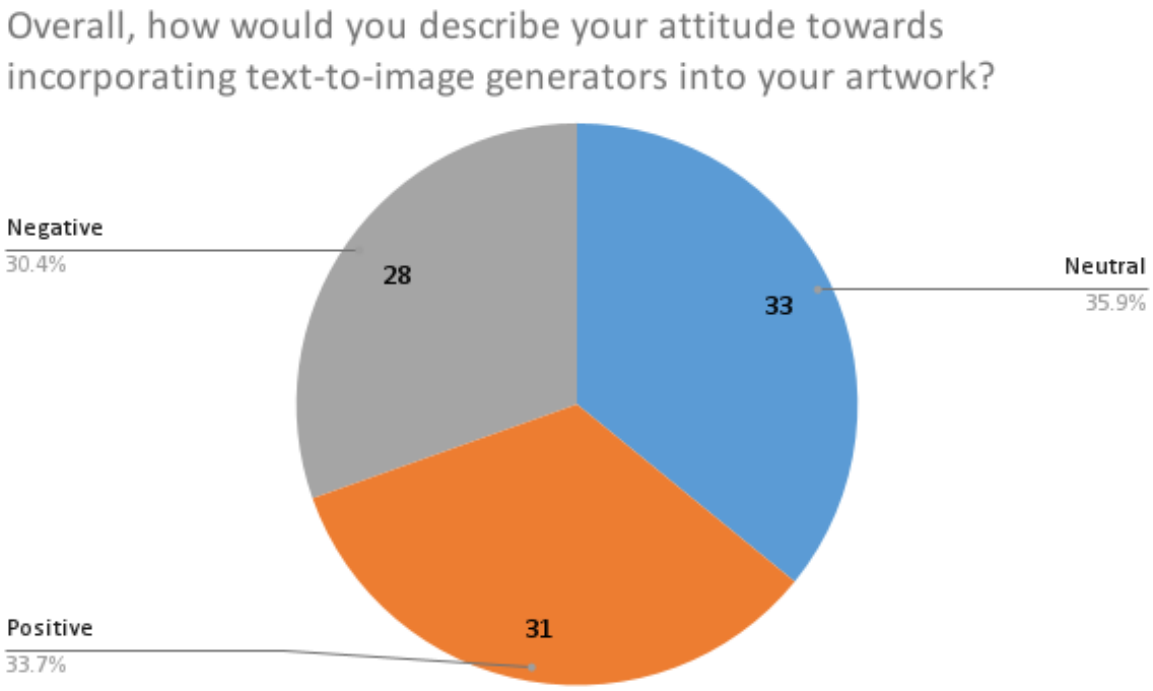

Figure 4.4: Overall attitudes towards incorporating TTIG into your artwork

4.2.3 Interesting findings

Before we dive into the rationale of using TTIG and workflow, the author found some noteworthy findings. Despite the imbalance number of genders, 76.36% of females do not use TTIG regularly while 61.76% of males use it. Also, creatives>35 years old are using TTIG more than <35 years old creative. There might be a correlation between gender, age and openness to this technology, but it needs further investigation.

80% of creatives who have a full-time career in art and also actively sell/showcase their artwork are not using TTIG regularly. 71.7% of creatives who have formal training in art/design are also not using it regularly. The author perceives this as there might be a direct competition in the digital world between digital artists who work full-time and people who utilise TTIG as shown in the Reddit analysis section. People who have formal training in art might feel discouraged and overtaken as TTIG enables you to produce high-quality images with no previous art background. But this phenomenon needs further investigation as well.

There is a clear correlation between how TTIG affects your motivation as a creative and whether you use TTIG regularly or not. 94.74% of creatives who feel a decrease in

motivation and 81.08% of creatives who feel neutral are not using TTIG, while 72.2% of creatives who feel an increase in motivation are using it. Unexpectedly, there is no correlation at all between years of experience and using TTIG. However 61.54% of creatives who have less than one year experience are using TTIG. The author perceives this as TTIG creating an opening for people to dive into art.

How TTIG affect motivation also has a correlation with how they perceive incorporating TTIG into their artwork. Creative who feel a decrease in motivation mostly perceive TTIG as negative (57.8%), and neutral (36.8%). Similar to creatives who have neutral-affected motivation, also perceive TTIG as negative (49.5%) and neutral (37.8%). Meanwhile, creatives who have increased motivation mostly perceive TTIG as positive (72.2%). This makes sense as people who have increased motivation might see TTIG as an interesting tool or a positive challenge.

4.2.4 "Not using TTIG" Section

There are 58 responses in this section. The answers to two questions asked in this section will be reported below.

Reason for not using

In this question, two people refused to answer, and five people gave unrelated answers. Those are exempted thus only 51 responses are analysed. In summary, there are five categories of the rationale of why these creatives are not incorporating TTIG in their creative process. People can also submit multiple reasons in one answer.

Personal Reason There are 24 people who answer in this category. The main reasons are that they are unfamiliar with TTIG and do not need it for their work or purpose yet (15 people). Five people answered that it costs money as it requires a subscription and the cheap ones are unsatisfactory. Lastly, two people answered that they are still beginners and do not use these tools yet as they are still learning.

> "Im not familiar with that idea and I dont really follow any trends on those new tools" [ID16]
>
> "I have not gotten time to explore it and some generators require subscription " [ID18]

> "I don't draw very often in general, but the most important reason is because I'm very much a beginner haha! I'm mostly following videos, and I can come up with concepts by myself. I'm not doing anything too complicated" [ID56]

Two people answered that it is not practical yet for UI images and it actually requires more time to fit into user needs.

> "The design creation process is still very dependent on user needs and limited time. If using an AI generator, it will take additional time to check the final results that are tailored to the needs." [ID97]

AI-Generated Art The First reason is the ownership issue. Five people feel the AI-generated art is unoriginal and would not be their art.

> "I want to make art. I don't want to request images made by calculating statistical averages. I see zero point in it. It wouldn't be *my* art." [ID44]

Next is related to the essence of art. Three people feel the AI-generated art will lose value when it is not man-made.

> "...i feel like it's unethical and strips away the essence of art itself, by craftsmanship" [ID10]

Lastly is the AI-generated picture still have some limitations such as looks generic, too perfect brush/lines, imperfect hands, etc. Four people expressed these limitations.

> "I don't like AI generated art. I can almost always tell when it's generated by AI. The lines/brushes are too perfect and almost always - to compensate for the "perfectness" - there's weird abnormalities." [ID20]

Ethical Issues Ten people expressed that AI-generated is unethical and it is stealing art. It is unfair to other artists and it comes from non-consented artists.

> "It is ethically unsound (as the source of the AI data came from artists who did not give their permission)." [ID71]

Impact on Artist Three people answered that AI-generated art impacts artists negatively, for example making them have less income and accused of plagiarism.

> "The use of AI as a generator requires artwork input from artists to be used as AI learning material with the intention of making the process easier, but in fact there are many people who input other people's artwork without permission and cause many problems to the artists whose artwork was submitted earlier. Problems here range from disrupted artist income, accusations of plagiarism, to criminal misuse such as pornography, and data falsification." [ID93]

One people express that it affects the art industry negatively.

> "Ethical reasons, mass theft of art, it's a corporate hype train that impacts the art industry negatively. Already heard of studios firing nearly their entire art departments". [ID13]

Artist Workflow Ten people expressed that using TTIG is not their way to make art and they already have their own workflow developed. Two people expressed that it hinders their creativity, and three people said that they prefer to create their own art manually.

> "I have my creative flow developed, which doesn't include AI generators, I did try out for fun but I don't see the images as original art at all. " [ID25]
>
> "I prefer creating art by myself" [ID76]

Two people express the current TTIG is a lack of control needed in the professional job. It also depends on what kind of art you make for example in comics, it is hard to make the art consistent for all panels using TTIG.

> "Ai image generators can not be use as a professional tool, they do not have the control that a professional needs to do his job. I did lot of testing and every time it is way faster for me to use stock images then to generate something using Ai and use that as a starting point. People spend weeks to generate something in Ai that can be done in Photoshop in couple of hours. ..... Now what I consider a professional use. I consider it to be to be able to earn enough for at list 3 member family, earning 10$ a month is not a professional use. " [ID30]

One person expressed that they already have another alternative.

> "I am a Product Designer, so I don't always need new artwork for working on new UI. And I have access to multiple illustration libraries to satisfy this need right now." [ID62]

Ethical Consideration

Next, they were asked do they have ethical or any considerations regarding the use of TTIG in their creative process. 14 people answered that they do not have any considerations regarding this technology. Some people expressed that it is not threatening artists and some expressed that it is okay to use as long as it is only for personal use or with modifications. The rest answers are divided into five categories.

Intellectual property Six people expressed that it is unethical because it does not credit or compensate the artists whose artwork is used in training data. Three people also expressed that it is plagiarism as it is copying another artist's style. "TTIG is stealing art" also said by six people. Five people expressed it is unethical as it uses the artwork without the creator's consent.

> "The AI is using artworks from multiple artist to generate its own version without crediting anyone. It's quite unethical since there is no credit or references." [ID1]
>
> "The fact that AI copies styles from other artists that could be winning more income, and they're not because of AI, it's something that feels unethical to me and worries me to a degree. " [ID20]
>
> "As said above, the text to image AI generator steals art from millions of artists. I feel bad because these small artists try their best to produce art and show them online to others just to have it stolen and produced by AI. If there is a way for AI not to produce stolen art, I think it would be a great tool. I am a UI designer and love seeing art for inspiration. I think this text to image generator is great, but I wish it was ethical, so I don't have to feel guilty when using it.." [ID43]
>
> "Yes, because the original data pool was not from the works of artists who authorized its use in this way. Art and technology have always gone hand in

> hand, but there is a difference in use when an artist trains an AI with his own data compared to the text to image AI that is now gaining popularity and being used by those who are less aware of the ethical implications." [ID71]

Lastly, five people have issues related to copyright claim as currently there is no clear copyright regulation of AI-generated artworks and people claiming those as their own.

> "I have encountered the articles about copyright problems regarding AI generated art. I still agree that in this sense it's problematic." [ID25]
>
> ".... The second is related to copyright. Who holds the copyright for AI-generated images, is it the company that owns the AI, the company that makes the AI (could be different), or the person who entered the prompt? This also raises the question of whether AI-generated images can be sold...." [ID66]

Personal considerations There are five people who expressed there personal considerations. One is related to privacy as they were afraid it could take their data. One said it is risky since there is no regulation yet. One is concerned about the environmental impact of AI. One does not feel the need to use and the last one thinks AI-generated art is not art. Below are some example quotes in this category:

> "it might take my personal data and also suggest the image that I tried to create to other people so the work is no longer original." [ID16]
>
> "I am concerned over the work of artists being used without permission and the energy needs required to train and operate large AI programs" [ID48]
>
> "Artworks are artistic creations/imaginations by humans. An image produced by an AI Generator cannot be considered a work of art. AI is trained to be intelligent through a process of 'Training' similar to how the human brain works, AI learns by incorporating many other people's works to get its own 'model'. But, we can take the benefits that AI provides itself, in this case being 'inspired' instead of claiming an AI-generated image." [ID69]

Impact on artists and the art industry The consideration related to the impact on artists and the art industry can be divided into two, internal and external. Three people expressed internal impact on artists including making artists less productive, less creative, and too dependent on AI.

> "When I use the text-to-image generator AI I become less productive and less likely to think. Although in some instances it can make things easier, for myself, it makes me lazy. I also have concerns that people might lose their creativity in the future if they rely too much on this AI" [ID67]

Eight people expressed their concern about losing jobs because of the rise of TTIG.

> "People that actually spend time and effort on their art are in danger of losing their jobs if AI takes over the artistic domain" [ID35]

One person said that AI company is disrupting the art industry, as they neglect other people's IP.

> "This is hard question, my personal opinion is that intellectual property should be rearranged legally, so that companies can not be holders of intellectual property's (exclude the parasites'), also that in some field as medicine those should not be available at all. What I am against is for someone to be granted an intellectual property on a cube whit round corners and a total disregard for intellectual property of other people. I do not have a problem for artist to take my work and build on it, I have a problem for a corporation to make a machine that will take all the art and spam the F the entire world whit crap images all in order to make some small amount of money. They are destroying a huge industry just to make some small amount of money (in corporation what the entire industry is making today. ..." [ID30]

Lastly, three people are concerned over monetising AI-generated art, for example selling the AI artwork directly without modification at all.

> "In my opinion, especially in graphic design. It seems like it will make work easier anyway. But I don't agree with AI in the world of illustrators, especially those that are commercialized (so we just generate images into AI, after that it immediately becomes a commission without being modified)." [ID83]

Perception of art Four people expressed that TTIG AI changes people's perception of art. In the young generation especially, it will make them think that creating art requires no skill or talent, and art will become "convenient".

> "Yes, it might change people's mind about creating art. Especially for younger generations, they may think it's not necessary to train the artistic skills, because they can use AI to generate some beautiful images in few seconds." [ID19]

> "I think it's already changing the expectations of art's audience, and I think that the intersection of capitalism and stupidity will drive things towards "convenience" and real art will suffer." [ID23]

AI for negative purposes Two people are concerned that AI will be used by people who do not understand art ethics, and four people are concerned about the misuse of AI for example, fraud, and NSFW purposes.

> "There is. if the AI that is implemented is a kind of tool that helps assist the process of creating the work (such as AI that is able to capture motion or color the base color) that's fine because in the end the power and "brain" of this work is human. But if it's text-to-image AI... what is it made for? It makes humans dumber because it reduces our ability to imagine. Not to mention the rampant cases of people who don't understand art ethics and steal people's works to "train" this AI." [ID72]

> ".... The last one is related to fraud. This may not be directly related to creating personal artwork, but it is possible. While AI-generated art in general still has many flaws, it can make it easier to commit fraud. When Korean artist Kim Jung Gi passed away, a few days later someone entered all his works into AI and created new illustrations with it. Broadly speaking, when viewed from afar, the image is quite similar to the original artist's work (although when zoomed in there are still many things that don't make sense). If one is not careful, the use of AI can lead one to imitate the style of others and spread slander. For example, someone who has never drawn NSFW content may "have" made it because someone else made it with AI. Of course, this is a problem with the use of generative AI itself." [ID66]

4.2.5 "Using TTIG" Section

There are 34 responses in this section. They were asked about the motivation, the benefits, the workflow, the drawbacks and some optional questions: how to balance style and how to navigate potential ethical issues.

Motivation and benefits

To understand the motivation for utilising TTIG in the creative process, the questionnaire included a User Motivation Inventory (UMI) questionnaire which comprises 18 questions based on self-determination theory [9]. Below is the graph illustrating the result:

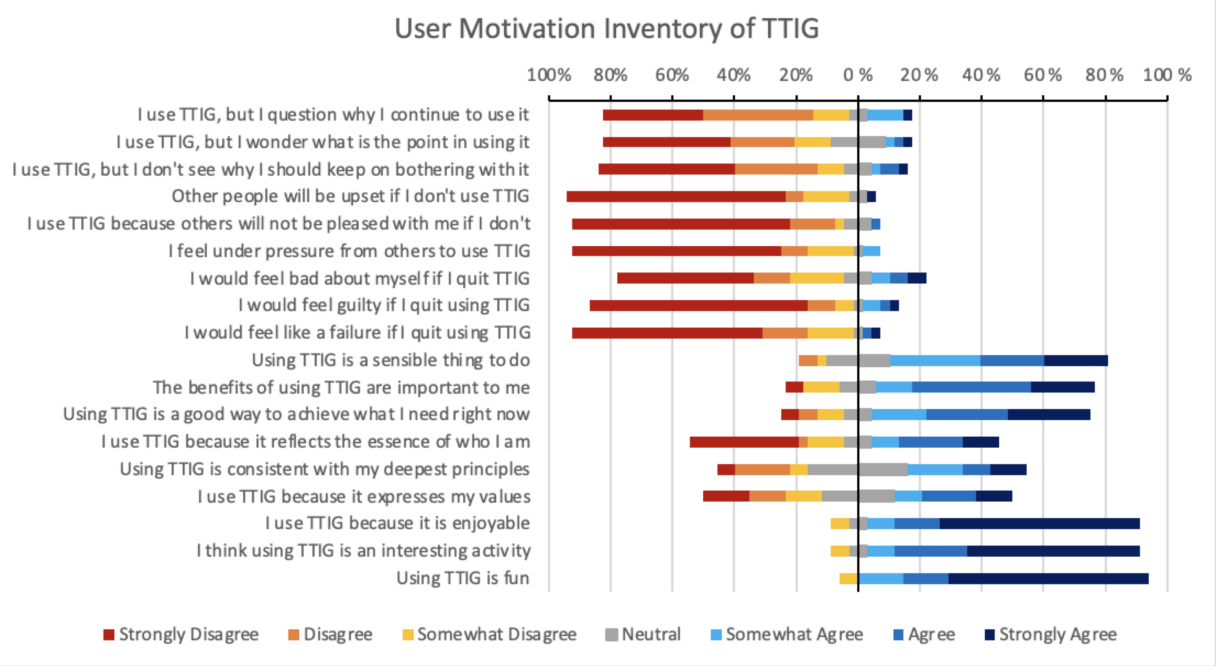

Figure 4.5: User Motivation Inventory of TTIG AI

The 18 questions are divided into six types of motivation regulation, with three questions in each regulation. For the questions related to external regulation (Question number 1-9), most people answered low on the Likert scale, with the mean for each regulation respectively, 2.37, 1.68, and 2.11. On the other hand, for internal regulation, most people answered high, except for the integrated regulation (Question number 13-15) which has varied and balanced answers with a mean of 3.91 on the Likert scale. The identified regulation (Question number 10-12) and internal motivation (Question number 16-18) have a high mean respectively, 5.17 and 6.72. This shows that the practicalities of TTIG and the enjoyment of using TTIG are what mostly drive the use of this technology.

This result is further amplified in the next question, about the benefit the users feel when using TTIG, as shown below table:

82.35% of the people who use this technology enjoy the playfulness that it brings, followed by the practicalities such as helping in inspiration and idea generation, exploration of creative possibilities and efficiency on experimentation. 47.06% of these people also feel

Table 4.3: Benefit felt by "using TTIG" respondents

Benefit	Percentages
Playfulness to experiment with new technology	82.35%
Inspiration and idea generation	76.47%
Exploration of new creative possibilities	76.47%
Efficiency on experimentation	73.53%
Helping overcoming artist block	47.06%

it helps with overcoming artist's block. There are also several other answers: two people expressed the ease of producing good images using TTIG, one person expressed a sense of community, and one person said TTIG helps in communicating ideas visually.

Workflow

The following two questions were asked to inquire about the workflow that utilises TTIG: Do you do this when you incorporate TTIG in your creative process? (multiple selection) and please explain the workflow when you incorporate TTIG in your creative process (long text). These two questions are analysed together to get a more comprehensive look into the workflow, as people might avoid answering in long text in an online questionnaire.

In summary, there are 4 types of workflow that incorporate TTIG: use it as a reference, as is, as a base and as parts. Certainly, each respondent could interchangeably use different workflow depending on their situations, but in the second question, they explained the one they generally use. Here is the distribution of the type of workflow shown in table 4.4.

Table 4.4: Distribution of workflow type

Type of workflow	Count (Total:34)	Percentages
As a base	11	32.35%
As a reference	11	76.47%
As is	7	20.59%
As parts	5	14.71%

32.35% of respondents that use TTIG regularly use the result from the TTIG as a reference, meaning after defining concepts, generating prompt and do prompt tweaking, the result is used only as a reference and the creative will create a work based on said reference. Two

people also said that they use the result from TTIG to communicate ideas before doing the actual execution.

> "In an assignment, the generator was used by inputting a prompt, then slowly iterating it with more description to fit the design concept envisioned as inspiration. From the generated images, it helped to draw sketches and get ideas on what type of colour, form, structure and style could be used for the design." [ID41]

20.59% said they use the result from TTIG as is, meaning the result from TTIG is the final artwork without any modifications afterwards. They usually spent a lot more time defining concepts and prompt tweaking until they got the desired result. One person said that they use their own created image as starting points before prompting and tweaking it with AI.

> "It depends on how I feel that day. Sometimes I just let my brain do a stream of consciousness input so I can see what Stable Diffusion will do with it. Other times I approach it with a very particular idea in mind, in which case I consider similar genres (including how disparate genres like science fiction novel covers and blown glass might be combined). Stable Diffusion operates with a chunky kind of syntax so I need to think about how the image connects together. Stable Diffusion is kind of like Claude Levi-Strauss's idea of mythemes–the end story depends on how you assemble your SD parts. Because SD reproduces inherent racism/sexism/etc. in its results I also need to think carefully about how to input representation. If I ask it for a "Senegalese man" it will generate some colonial-era imagery of impoverished old men in grass skirts. If I instead google Senegalese soccer players, choose two, and then tell SD to blend their faces together to make a new person, I get a contemporary Senegalese man without all the colonialist nonsense. In that way prompt creation is also like a puzzle, which is fun" [ID27]

32.35% said that they use the AI-generated result as a base, meaning they choose one image from the set of results from TTIG, and then modify and enhance it. They could do modifications in editor applications such as Photoshop, or combine it with other AI tools.

> "Idea - think prompt - Midjourney - edit prompt - ask chat gpt - Photoshop/Figma - done " [ID5]

Lastly, 14.71% use TTIG as parts. The image results from TTIG are used as assets or parts in the full artwork. They may use it as is, trace it, refine it before use or wholly redraw the asset. Finally, they will merge them all into the actual artwork.

> "Mostly use it to generate several parts of a planned bigger image and then branch from those until i have sufficient inspiration for each part. These can be copied as they are/tweaked here and there/inspiritation for own interpretation and put together in the end." [ID11]

Additional questions

Drawbacks Aside from three people who refused to answer, three people expressed no drawbacks from the current technology. Three people claimed that the current technology is inching towards a homogenous style.

> "Similar generations leading to generalised output" [ID60]

Two people concerned about the current TTIG and sense of morality of the community that seems to discourage artists and wants to replace human artists.

> "for now, I think it's still in the developing stage and there are still many new innovations that continue to emerge quickly. but what I want to highlight is maybe more about the community and moral education... most TTIG users actually want to 'replace' art workers which I think is very strange... even though TTIG is a very good invention for art workers to be able to implement it into their creative work methods and speed up some processes. but instead these early 'techbro' people are the ones who rampant use of TTIG. So in my opinion it's not the TTIG, it's more about the community and moral education is still very minimal." [ID75]

One person is also concerned about reducing the authenticity of complete human man-made art. Four people are concerned over the current ethical issues that using other artists artwork without consent.

> "The fact that it is trained with the works of people who did not consent to it is problematic" [ID54]

Five people expressed drawbacks related to creative self, for example sense of detachment to work, less creativity, and addiction. Some people also feel frustrated that people can generate the same quality artwork with much less experience.

> "As a designer, I felt that using TTIG skips some parts of the process that could create a sense of detachment towards the work. But this is something that I knew would find its place in how we work, potentially filling a role that will develop how we work." [ID8]

Mostly, 14 people expressed drawbacks related to the limitations of the current technology itself. It is currently still hard to generate abstract and complex concepts, impaired image results, lack of fine control, and bias towards a style. It is also unable to handle negative prompts in complex sentences well. One person expressed that the current TTIG is too expensive.

> ".... Areas where it needs improvement are the rendering of human hands, faces, and generated text. It also can't handle more than one topic at a time sometimes. If you ask for Scooby Doo and Boris Johnson in one image it will output Boris Doo instead. " [ID27]

Balancing style The next question is how to incorporate text-to-image in your artwork while maintaining your unique artistic style. Seven people said they sometimes or do not do anything in particular. Five people said they use the result as a base and modify it again according to their style.

> ".... I feel like many times my ideas are very repetitive or unoriginal. Using AI as a base for my characters and modifying some things help me add personality to them. I'm not sure where the to draw the line between original character from scratch and AI generated character. Most times, I try to modify the hair, facial shape, body figure, and color to make it different enough..... " [ID59]

Two people said they use their own artwork as a style reference.

> "I believe there are multiple ways but what I would do is use my original artwork as a style reference " [ID5]

Six people said they only use the result from TTIG as inspiration.

> "I only use it for the general idea of the scene or a particular movement/position so my art style is not impacted by those" [ID54]

Four people expressed their unique artistic style is reflected in the prompt. One person said they take pride to able generate hard reproducible images. One person said they use constant nuance and element, and one person mixed different prompts and styles.

> "My unique style and personal expression is based on the prompts I use to create those image, I express it through the details and the crafting of the prompt itself. I take pride in producing images that are hard to reproduce." [ID37]

Navigating potential ethical issues There are several different perspectives regarding potential ethical issues. One person said they have no stance on the matter. Nine people answered that there is no concern, three people said it's ethically okay, two people said it's similar to how human artists learn, two people said it's just a tool, and three people use it only for personal use. Seven people said they were aware of the ethical issues but not do anything in particular.

> "I think TTIG was made to help humans in the first place, it's just a tool. What matters is how human can feel for their artworks and know what prompts to put." [ID6]
>
> "I know it sounds bad, but I try not to think about it too much. My brain has enough things inside! I'm aware many artists are negatively affected by the usage of AI generated images. That's why I don't mind if it disappeared forever. Sure, I would have to make more effort with my characters, but it may be worth it. It would just take so much more time and effort. While it is available, I'm willing to use AI to get inspiration and make artwork I love." [ID59]

However, ten people are aware of this issue. Some try to respect the IP, by not using the artist's name in the prompt, modifying the image from TTIG to add originality, and avoiding misusing AI. One person expressed that they use TTIG which already has clear sources. Two people also expressed that they only use it as inspiration.

"This is hard as for now AI creates assets from art already available but I do try to tweak any assets i get from AI to somehow add some "originality" to it." [ID61]

"Try to keep it mostly inspirational so far until there is a model proven to not obviously benefit from not-publicly available data." [ID11]

5 Discussion and Recommendations

5.1 Answering Research Questions

Combining both the Reddit analysis and online questionnaire analysis, the summary of the answers to the research questions, along with related theories will be explained below.

5.1.1 Research Question 1: Why do creative practitioners utilise or not utilise text-to-image generator AI in their creative process?

Not utilise TTIG

The rationale of creativity for not utilising text-to-image generator AI in their creative process varies widely. The most straightforward reason is that they have yet to need it; it is not practical enough and requires money to buy the subscription. Moreover, they still have other more suitable alternatives available.

Ethical issues constitute another significant factor. They feel that it is unfair to other artists. Most TTIG systems currently use images scraped from the internet [64]; thus, they come from creators without consent. This practice is often perceived as "art theft" and raises concerns over using copyrighted material in the training data. Even though it is debatable that when posting art on the internet, it is counted as data for the public to consume, it is generating discontent among artists who find their work unintentionally included

Next is related to the impact on artists and the art industry. Some feel that using TTIG contributes to the downfall of artists, making them have less income than before or being accused of plagiarism. Some expressed that some art spaces are already flooded with AI-generated pictures, making it harder for genuine artists to shine. Some people are also concerned that it potentially hinders genuine creative expression by fostering dependency on AI.

Furthermore, the previous notion is also related to the fear of losing jobs and the idea that

TTIG will finally replace human artists. This fear is also amplified by several people's claims that studios are downsizing art departments and freelancers are experiencing reduced income since AI's ascension. It is a valid concern as capital-driven industries often prioritise cost-efficient and rapid solutions, favouring the convenience offered by TTIG. As stated in [47], looking from the historical postindustrial revolution lens, the current AI Art Generator creates problems that mirror post-industrialization, for example, increased plagiarism and the shift from skilled to unskilled labour, especially in commercial art. Some creatives are also concerned with people who sell AI-generated art, as the ownership and attribution issues surrounding AI-generated art still need to be clarified [22, 24, 12]. The black-box nature of this generative model complicates fair attribution to all the stakeholders involved. Additionally, according to US copyright law, AI-generated art can not be copyrighted [12], and its right to sell needs to be clarified because it challenges the notion of fair use. Comprehensive research into ethical, legal, and societal implications regarding AI-generated content usage and ownership is needed.

Another rationale for not utilising TTIG is the divergence from their established workflow. Some creatives prefer their distinct and manual methods. One of the reasons might be that TTIG relegates them to a role akin to a commissioner instead of an artist [71]. They also highlight TTIG's limitations in providing the control needed in professional jobs, which depend heavily on the art type being created.

The last reason mentioned is related to AI-generated art itself. Some creatives express reservations about the authenticity and originality of AI-generated art. They argue that AI-generated art is also losing value because it lacks human emotion and is not man-made. AI-generated art produced by TTIG also has limitations such as impaired hands, lines and brush being too perfect, and the result is too generic. However, it is worth noting that TTIG is rapidly developing, with ongoing efforts to address these limitations.

It is noteworthy to mention that many creatives voice apprehension and anxiety about TTIG on social media platforms. Discussions often revolve around safeguarding artistic integrity and mental well-being in the face of perceived threats from AI. Concerns extend beyond job security, pivoting on individual perceptions of artistic value, confidence levels, and the motivations driving their artistry. Artists valuing the uniqueness of their handcrafted artwork, personalised creative process and identity as an artist feel threatened by AI's potential to mimic their style or replace their art. Their distinctive style serves as a hallmark, reflecting their unique expression, which may not be fully appreciated by the untrained eye but holds immense significance for the artist's identity and creative process.

This sentiment reflects their unease, feeling overshadowed as non-artists seemingly produce superior work with much less effort despite the artists' years of dedication to cultivating their distinctive style.

Utilise TTIG

Based on the User Motivation Inventory (UMI) result, the central driving aspects creative practitioners utilise TTIG in their artwork creation are playfulness and practicality. They feel enjoyment and fun experimenting with TTIG. The fun might come from the unexpected aspect of results from TTIG with great surprises [23]. One person also said that figuring out what prompts to write to generate the picture they want is like playing a puzzle ([ID27], "...In that way prompt creation is also like a puzzle, which is fun"). They also feel that TTIG is beneficial as it sped up the development process. The process, which usually takes days, could be done in hours.

From the UMI result, identified regulation and intrinsic regulation have a very high score; meanwhile, integrated regulation is less. This implies that users see the value and relevance of TTIG to their personal goals. However, the low score of integrated regulation does not necessarily mean the behaviour is meaningless. It shows that while the behaviour is valued, it has not fully integrated into the individual's sense of self. However, with constant engagement, the integration into the core identity might develop with time.

The UMI result showed that what drives these creatives to use TTIG mostly comes from intrinsic rather than extrinsic motivation, so the action is self-determined. Based on self-determination theory [19, 32], self-determined behaviour leads to more favourable behavioural, cognitive and emotional outcomes, such as sustained engagement, experience fulfilment, and better well-being.

This result is emphasised by 82.75% of respondents who use this technology enjoy TTIG's playfulness—followed by practicalities that it brings, such as inspiration and idea generation and exploration of new creative possibilities, with 76.47% for both. The various ways creatives utilise this technology in their creative process are explained in the next section.

5.1.2 Research Question 2: How do creative practitioners utilise text-to-image generator AI in their creative process?

There are generally four ways in which creative practitioners utilise TTIG in their creative process: as a reference, as is, as a base, and as parts. These four ways usually start in these three steps: (1) Defining the concept, (2) Generating prompt, and (3) prompt tweaking. Prompt tweaking is an iterative process, including refining the prompt and trying out different models, and it could take hours to get the desired result. This is also proven in a study by Oppenlaender that practitioners use prompt modifiers to control their final result, and the process can take up a few hours, including the time spent on research [54]. This is especially true for the type of creatives that use the results from TTIG without any modification. They will spend most of their time defining concepts and prompt tweaking.

The designers mostly opt only to use TTIG as a reference and to communicate their ideas visually. It also serves as an inspiration engine. This might be because designers still need to develop a practical tool; they just need references before going into the direction they want to pursue. Other artists, such as digital artists, also use this workflow. Some even input their image to add a more personal touch.

Using it as a base means they will choose one of the results produced by TTIG and enhance it with an editor application, such as Photoshop or other AI applications, for example, upscaling, inpainting, outpainting, colour grading, and others. In the Reddit analysis report, some users also said they use ControlNet, MLSD and other AI tools to control the model and enhance the result.

Lastly, to use it as a part of the actual artwork. This type of workflow can augment the artists' skills and help with the parts they struggle with, such as background. They could use the result as an asset without any modification, trace it, enhance it, or wholly redraw it first, meaning they could use the result only as a reference for parts of the image.

However, users reported that the current TTIG still has some drawbacks, such as too generalised output, ethical issues, and the limitations of the technology itself, such as impaired hands, lack of fine control, and difficulty in generating abstract and complex concepts. Nevertheless, some of these issues, like imperfect results from TTIG, could be overcome if the creative practitioner does certain modifications afterwards, as seen in the "as a base" workflow.

5.2 Implications and Recommendations

Examining the Reddit analysis and online questionnaire findings underscores TTIG's enduring presence despite ongoing ethical and copyright concerns. Its continuous evolution remains evident, supported by the result of UMI, that the sustained usage is driven by internal motivation, suggesting a lasting impact. TTIG has much potential that is waiting to be discovered.

TTIG's integration into the art creation landscape reshapes societal perceptions of art. This transformative process involves various stakeholders–The programmer of the system, the creators of artwork used in the training data, the users who generate the prompt, curate the result and present the result, with or without modification [23]. The AI introduction challenges conventional notions of art, creativity, and ownership. As seen in Reddit, it has sparked debates about whether AI-generated art is truly art. It reveals the potential threats to the livelihoods of creative practitioners in today's society and market dynamics.

Artists are known for embracing new tools, including AI, yet the Reddit artist community exhibits diverse perspectives on this technology, with polarised opinions between staunch supporters and detractors. Beyond job concerns and ethical dilemmas, community dynamics significantly influence the reception of technology. The amplified voices at both extremes, entrenched in their positions, create discord, making it challenging for anti-AI artists to accept this innovation while pro-AI artists seek refuge from backlash.

As seen in [71], TTIG's integration is evident in gaming industries. This would potentially alter job landscapes by elevating the industry's skill standards. TTIG also reduced the barrier to skill in the art industry. While art democratisation would allow broader participation, enabling non-artists to produce art without any art education or training, this is also one of the reasons that many artists feel discouraged and lose motivation.

This study emphasises the urgency for policymakers to craft regulations safeguarding creative practitioners and their creations. The regulation should also fairly compensate all professional creatives involved in the creation, including training data and addressing ethical issues. Developing TTIG that uses safe data sources are also a good alternative as it does not infringe copyright laws, is ethically acceptable, and the license to sell the image results is clearer. Some leading examples are Adobe Firefly beta, which trains on copyrighted material, Adobe Stock images and Shutterstock AI.

Collaboration between generative AI developers and creative professionals is urged to

create human-centric tools addressing artists' needs without losing playfulness. Playfulness is an important aspect because it is one of the main driving reasons to use this technology and has a positive effect on user experience [41]. One issue to address is adding more control to the TTIG system to be used in professional capabilities. There are already several alternatives like ControlNet and MLDS to give more control to users by letting users input a rough sketch. However, it requires technical understanding not universally possessed by artists.

Lastly, recognising the implications of art education is crucial. Concerns among aspiring artists regarding TTIG's arrival warrant its inclusion in curricula. Educating the younger generation about AI's impact and potential applications in their professional careers can empower them to navigate this transformative landscape effectively.

6 Conclusions

6.1 Conclusion

In conclusion, this study delved into the motivations and reservations that creative practitioners hold regarding the adoption of Text-to-Image Generative (TTIG) AI within their creative processes. The multifaceted nature of their decisions emerged through an analysis of 331 Reddit posts and comments, along with insights from a comprehensive questionnaire involving 92 participants.

The findings underscore a diverse array of reasons behind the reluctance of some practitioners to embrace TTIG, ranging from personal preferences and ethical concerns to apprehensions about its impact on the artist's identity and the inherent nature of AI-generated art. Conversely, those who actively engage with TTIG are predominantly driven by its playfulness and utility, experiencing tangible benefits such as serving as a source of inspiration, facilitating idea generation, and opening avenues for novel creative exploration.

Moreover, this research uncovered four primary workflows employed by practitioners integrating TTIG into their creative endeavours: utilizing it solely as a reference, adopting it as is, employing it as a foundational base, or incorporating it as fragmented parts within their work. These varying approaches shed light on the adaptability and versatility of TTIG within creative workflows.

The implications of these findings are far-reaching, highlighting the need for proactive policy measures to safeguard the rights of creatives and their intellectual property in an era increasingly intertwined with AI-generated content. It is imperative for policymakers to develop regulations that not only protect the integrity of artistic expression but also foster collaborative engagements between AI technology and creative practitioners.

In response to these insights, the study suggests a collaborative approach to further developing TTIG systems, advocating for the active involvement of creative practitioners in the design and refinement processes. Additionally, the integration of AI into art education curricula is proposed, aiming to equip future artists with the tools and ethical frameworks necessary to navigate the evolving landscape of AI-infused creativity.

6.2 Limitation and Future Research Recommendation

This thesis presents several limitations stemming from the chosen data collection methods. Regarding Reddit analysis, the reliability and trustworthiness of the findings may be compromised due to potential misinformation and impartiality often associated with online data. The author can not confirm the validity and authenticity of the claim made by users. Moreover, the anonymity feature of Reddit, coupled with social media algorithms prioritising user engagement, could potentially amplify negative perspectives over positive ones. Additionally, the discussion touches on Creative AI broadly rather than the specific TTIG AI, even though they actually refer to TTIG AI as AI. But, the Reddit analysis still gives a nice overview of what creative practitioners thoughts and current trends regarding AI in the art world. Hence, the data is complemented together with an online questionnaire.

The sample data derived from Reddit analysis is a relatively small number and consists solely of text posts. While sufficient for generating results, expanding the dataset to encompass more diverse data types and a larger volume would offer a more comprehensive understanding and enhance the generalizability of the findings. Considering the rapid evolution of this technology and opinions surrounding it, collecting posts spanning a full year might be excessive. Therefore, it's advisable to opt for a shorter timeframe for social media analysis.

The author is also aware that the questions in the online questionnaire could be further improved. Based on the result of the Reddit analysis, a lot of creatives feel discouraged because of this new technology, attributing their discouragement to a perceived inability to compete with AI-generated work. Subsequent research could involve evaluating individuals' confidence in their creative skills and their perspectives on art and AI. These factors might correlate with their openness to embracing this technology. Answers in this online questionnaire especially in open-ended questions, were often short and did not give deep insight, as the nature of the questionnaire. A follow-up interview is recommended to inquire about more information.

Furthermore, the analysis of result data was conducted manually by a single coder, thereby bearing the risk of researcher bias and subjectivity. Future research endeavours could explore the implications of this technology on creative professionals, particularly in terms of

their careers and impact on the art market, along with empirical evidence. The impact of this technology on one's self-creativity also might be intriguing and beneficial. Additionally, investigating this phenomenon from an art education perspective might yield insights into its effects on the emerging generation of creatives.

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Appendix A Online Questionnaire

Questionnaire on Motivation and Usage of Text-to-Image Generator for Artist

This questionnaire would take 5-10 minutes to complete. The questionnaire will be closed on 3rd September 2023. Thank you!

* is required

Consent Form

Hello!

Please read this consent form carefully before you decide to participate in the study.

Purpose of this study: to understand artists' perspective of text-to-image generator AI. to investigate the motivation for artist to use text-to-image generator AI and how artist utilize it in their creative process.

Risks and benefits: No risks are associated with this study. Upon the completion of the study, you will have the chance to get the research result and participate in the interview to get voucher compensation by putting your email in the last question.

Voluntary participation Right to withdrawal: Your participation is completely voluntary. There is no penalty for not participating. You have the right to withdraw from the study at any time without consequences.

Data logging Confidentiality: Your data will be used for scientific purposes only, and your identity will be anonymized.

Whom to contact if you have questions about the study

Fayya Anyatasia, University of Helsinki

fayya.anyatasia@helsinki.fi

Agreement

By clicking next, I confirm my participation in this study and agree to volunteer as a study participant.

1. Name / Initial* (short text)
2. Age* (single selection)

- < 18 years old
- 18 - 25 years old

- 25 - 35 years old
- 35 - 45 years old
- > 45 years old
- Prefer not to say

3. Gender* (single selection)

- Female
- Male
- Non-binary
- Prefer not to say

4. What type of artist / designer do you classify yourself as?* (multiple selection)

- Digital artist
- Graphic designer
- Illustrator
- Mixed media artist
- Photographer
- UI Designer
- Animator
- Other

5. How would you categorize your level of involvement in art / design?* (single selection)

- Professional
- Hobbyist
- Student

- Occasional

6. Are you currently pursuing art / design as a full-time career?* (single selection)

- Yes
- No

7. How many years of experience do you have as an artist?* (single selection)

- < 1 year
- 1 -3 years
- 3 - 5 years
- > 5 years

8. Have you received formal art education or training?* (single selection)

- Yes
- No

9. Are you actively selling or showcasing your artwork online (e.g Post in Instagram/Twitter) or through galleries?* (single selection)

- Yes
- No

Text-to-Image Generator AI Questions

10. How familiar are you with text-to-image generators that can automatically create visual representation based on textual input?* (single selection)

- Not familiar at all
- Somewhat familiar
- Familiar
- Very familiar

11. Have you personally used or experimented with text-to-image generators in your artistic practices?* (single selection)

- Yes
- No

12. How has the availability of text-to-image generators influences your motivation to create art / design?* (single selection)

- Decreased motivation
- Slightly decreased
- Neutral
- Slightly increased
- Increased motivation

13. How often you used text-to-image generator in your artistic practices in the last 3 months?* (single selection)

- Never
- Rarely
- Sometimes
- Often
- Always

Motivation on using Text-to-Image Generator AI

14. Please read each statement carefully and indicate your level of agreement or disagreement by selecting the appropriate response on the Likert scale provided. The Likert scale ranges from 1 to 7, with 1 representing "strongly disagree" and 7 representing "strongly agree". Please choose the response that best reflects your thoughts, feelings, or opinions regarding each statement. There are no right or wrong answers, so please answer honestly based on your own perceptions and experiences. Your feedback is valuable and will be

kept confidential.

Glossary:
TTIG = Text-to-image Generator AI (e.g Stable Diffusion, DALL-E 2, Midjourney, etc).*

	1	2	3	4	5	6	7
I use TTIG, but I question why I continue to use it							
Other people will be upset if I don't use TTIG							
I would feel bad about myself if I quit TTIG							
Using TTIG is a sensible thing to do							
I use TTIG because it reflects the essence of who I am							
I use TTIG because it is enjoyable							
I use TTIG, but I wonder what is the point in using it							
I use TTIG because others will not be pleased with me if I don't							
I would feel guilty if I quit using TTIG							
The benefits of using TTIG are important to me							
Using TTIG is consistent with my deepest principles							
I think using TTIG is an interesting activity							
I use TTIG, but I don't see why I should keep on bothering with it							
I feel under pressure from others to use TTIG							
I would feel like a failure if I quit using TTIG							
Using TTIG is a good way to achieve what I need right now							
I use TTIG because it expresses my values							
Using TTIG is fun							

15. What are the benefit that you feel using text-to-image generator in your creative process?* (multiple selection)

- Inspiration and idea generation
- Exploration of new creative possibilities
- Efficiency on experimentation
- Playfulness to experiment with new technology
- Helping overcoming artist block

- Others

Usage of Text-to-Image Generator AI

16. Do you do this when you incorporate text-to-image generator in your creative process? (select all that applies)*

- Generating prompt and curating images to use as references before creating the actual artwork
- Generating prompt and curating images to use as a base for the actual artwork
- Input your rough sketches and simple prompt to the AI to generate a lot of sample pictures
- Prompt tweaking and trying out different models to get desired set of result
- Adjust the result from AI in an editor program (e.g Photoshop, etc)
- Others

17. Could you explain your workflow while incorporating text-to-image generator in making an artwork / design?* (long text)

18. How do you balance incorporating the output of text-to-image generator in your artwork while maintain your unique artistic style and personal expression? (long text)

19. How do you navigate the potential ethical concerns surrounding the use of text-to-image generator in art creation? (long text)

20. What are the potential drawbacks that you feel from the current text-to-image generator?* (long text)

Not using TTIG Section

21. Please explain your reason to not use text-to-image generator AI* (long text)

22. Do you have any ethical concerns or considerations related to the use of text-to-image generator AI in art? Please explain. * (long text)

Future Section

23. In your opinion, what are the future implications of text-to-image generator AI?* (long text)

24. Overall, how would you describe your attitude towards incorporating text-to-image generators into your artwork?*

- Negative
- Neutral
- Positive

Contact Section

25. Please put your email below if you would like to get the research result after the study is done and/or participate in the interview about the detailed usage of text-to-image generative AI on your creative process.
Interview participant will be compensated with voucher. (long text)

26. What would you like your email to be used for? (multiple selection)

- Get the research result after the study
- Contacted to participate in the interview

Appendix B List of Respondents of Online Questionnaire

Table B.1: List of participant in online questionnaire

ID	Age	Gender	Regularly use TTIG
1	25 - 35 years old	Female	No
2	25 - 35 years old	Male	Yes
3	35 - 45 years old	Male	Yes
4	18 - 25 years old	Female	No
5	18 - 25 years old	Male	Yes
6	18 - 25 years old	Male	Yes
7	18 - 25 years old	Male	No
8	18 - 25 years old	Male	Yes
9	18 - 25 years old	Male	Yes
10	18 - 25 years old	Female	No
11	25 - 35 years old	Male	Yes
12	25 - 35 years old	Female	No
13	18 - 25 years old	Prefer not to say	No
14	18 - 25 years old	Female	No
16	25 - 35 years old	Female	No
17	25 - 35 years old	Female	No
18	25 - 35 years old	Female	No
19	25 - 35 years old	Female	No
20	35 - 45 years old	Male	No
21	35 - 45 years old	Male	Yes
22	25 - 35 years old	Female	No
23	$>$ 45 years old	Male	No
24	$<$ 18 years old	Male	Yes
25	18 - 25 years old	Female	No
26	18 - 25 years old	Female	No
27	35 - 45 years old	Male	Yes
29	35 - 45 years old	Male	No
30	$>$ 45 years old	Male	No

ID	Age	Gender	Regularly use TTIG
31	35 - 45 years old	Male	Yes
33	35 - 45 years old	Male	Yes
34	18 - 25 years old	Male	No
35	18 - 25 years old	Female	No
36	< 18 years old	Female	No
37	35 - 45 years old	Male	Yes
38	Prefer not to say	Female	No
41	18 - 25 years old	Female	Yes
42	25 - 35 years old	Female	Yes
43	18 - 25 years old	Female	No
44	25 - 35 years old	Male	No
46	> 45 years old	Male	Yes
47	> 45 years old	Male	Yes
48	18 - 25 years old	Male	No
49	> 45 years old	Female	Yes
50	35 - 45 years old	Female	Yes
51	25 - 35 years old	Male	Yes
52	35 - 45 years old	Male	Yes
53	< 18 years old	Female	No
54	18 - 25 years old	Female	Yes
55	18 - 25 years old	Female	Yes
56	< 18 years old	Prefer not to say	No
57	18 - 25 years old	Female	No
58	18 - 25 years old	Female	No
59	18 - 25 years old	Male	Yes
60	18 - 25 years old	Female	Yes
61	25 - 35 years old	Female	Yes
62	35 - 45 years old	Female	No
63	25 - 35 years old	Female	Yes
64	18 - 25 years old	Female	No
65	25 - 35 years old	Male	No
66	18 - 25 years old	Male	No
67	18 - 25 years old	Female	No

ID	Age	Gender	Regularly use TTIG
68	18 - 25 years old	Female	No
69	18 - 25 years old	Female	No
70	18 - 25 years old	Female	No
71	18 - 25 years old	Female	No
72	18 - 25 years old	Prefer not to say	No
73	18 - 25 years old	Male	No
74	18 - 25 years old	Female	No
75	18 - 25 years old	Female	Yes
76	18 - 25 years old	Female	No
77	18 - 25 years old	Female	No
78	35 - 45 years old	Female	Yes
79	18 - 25 years old	Female	No
80	18 - 25 years old	Female	Yes
81	18 - 25 years old	Female	No
82	18 - 25 years old	Female	No
83	18 - 25 years old	Female	No
84	18 - 25 years old	Female	No
85	18 - 25 years old	Female	No
86	18 - 25 years old	Female	No
87	18 - 25 years old	Female	No
88	25 - 35 years old	Female	Yes
89	18 - 25 years old	Male	Yes
90	25 - 35 years old	Female	No
91	18 - 25 years old	Male	No
92	18 - 25 years old	Female	No
93	25 - 35 years old	Male	No
94	18 - 25 years old	Female	No
95	18 - 25 years old	Male	Yes
96	18 - 25 years old	Female	No
97	18 - 25 years old	Female	No
98	25 - 35 years old	Male	Yes