

# **When AI Meets Art Therapy: Evaluating AI-Generated Art Through Art Therapists Insights**

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# When AI Meets Art Therapy: Evaluating AI-Generated Art Through Art Therapists Insights

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## Abstract

**Background:** With the increasing integration of Artificial Intelligence (AI) into various aspects of daily life, there is a growing interest among designers and practitioners in incorporating AI into their fields. In healthcare domains like art therapy, AI is also becoming a subject of exploration. However, the use of AI in art therapy is still undergoing investigation, with its benefits and challenges being actively explored.

**Objective:** This study aims to investigate the integration of AI into art therapy practices to comprehend its potential impact on therapeutic processes and outcomes. Specifically, the focus is on understanding the perspectives of art therapists regarding the utilization of AI-assisted tools in their practice with clients, as demonstrated through the presentation of our prototype consisting of a deck of cards with words covering various categories alongside an AI-generated image.

**Methods:** Employing a co-design approach, ten art therapists affiliated with the American Art Therapy Association participated in this study. They engaged in individual interviews where they discussed their professional perspectives on integrating AI into their therapeutic approaches, evaluating the prototype. Qualitative analysis was conducted to derive themes and insights from these sessions.

**Results:** Our findings provide a comprehensive evaluation of the impact of AI on facilitating the therapeutic process. The combination of a deck of cards and the utilization of an AI-generated tool demonstrated an enhancement in the quality and accessibility of therapy sessions. However, challenges such as credibility and privacy concerns were also identified.

**Conclusions:** The integration of AI into art therapy presents promising avenues for innovation and progress within the field. By gaining insights into the perspectives and experiences of art therapists, this study contributes knowledge for both practical application and further research.

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## Original Manuscript

## Original Paper

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**Keywords:** Art therapy; Artificial intelligence; AI; Therapeutic interventions; Assistive AI; Engagement; Healthcare.

## Introduction

Creative arts therapies (CATs), encompassing modalities such as art therapy, dance/movement therapy, drama therapy, music therapy, psychodrama, and poetry/bibliotherapy, have demonstrated benefits for psychological and physiological health [37]. These therapies allow individuals to communicate their thoughts and feelings through artistic mediums serving as transitional objects. Each CAT modality employs distinct tools, leveraging metaphor, creativity, imagery, symbolism, and nonverbal cues as therapeutic tools [10]. Among these, art therapy uses visual art media within a psychotherapeutic context to facilitate both non-verbal and verbal self-expression and reflection through art-making, offering a structured and secure environment for playful experimentation and self-awareness, thereby promoting mental well-being and personal [10, 37].

Similar to any other field, the integration of digital tools and applications in art therapy practices has attracted attention as a result of technological advancements. Innovative methods to engage clients,

foster creativity, and enhance the therapy process have been made possible by technology in art therapy [6, 20, 36, 37]. Artificial intelligence (AI) is a modern technology that is widely used in many industries, including healthcare and, more recently, art therapy [29]. Since McCulloch and Pitts' seminal work in the 1940s, AI has been the product of decades of research and development [28]. AI significantly alters societal activities and has a significant impact on human behavior, cognition, and lifestyle through its capacity to analyze external data and perform tasks traditionally carried out by humans [33]. This technological evolution is characterized by machine learning capabilities that enable machines to learn, sense, reason, and act autonomously, analyzing datasets and predicting attributes [33]. However, despite initial skepticism among practitioners regarding the introduction of computer-oriented tools, concerns about machines replacing human roles are largely unfounded [24].

## Prior Work

The Fourth Industrial Revolution, marked by advancements like big data, artificial intelligence, Internet of Things (IoT), and cloud computing, has spurred innovation in the medical field [23]. These innovations, in art therapy, present promising solutions to challenges within therapeutic practices. Through the analysis of artwork and facilitation of client contact, AI proved to be an effective tool in the support of art therapists [2]. Deeper understanding of clients' emotional states and therapeutic requirements is made possible by AI-assisted systems, which enhance communication between therapists and their patients [7, 26, 34].

Expert systems, a subset of AI, provide a method to address the inherent complexity and subjectivity issues in art therapy by systematizing, organizing, and classifying diverse knowledge [23]. By providing objective standards in a systematic approach, these systems seek to enhance conventional art therapy methods [15, 17]. As indicated in previous studies, art therapy could attain new heights with AI integration, empowering practitioners and enhancing patient outcomes [23]. While art therapists are guided in their decision-making by frameworks like the Expressive Therapies Continuum (ETC), which emphasize the importance of selecting appropriate art materials based on therapeutic goals [12], generative AI has the potential to be trained and generate recommendations for specific artworks, colors, and images, thereby improving therapeutic outcomes [48]. By simulating therapeutic conversations with empathic support, generative AI creates situations and conversations crucial in conventional art therapy, empowering therapists to explore further into clients' emotions and experiences [48].

The integration of AI into art therapy has led to novel approaches for human-AI co-creation with the aim to enhance therapeutic processes and inspire creative expression [12]. Computer systems intend to enhance art therapy by bringing objective standards in a methodical manner, as opposed to replacing current approaches [15, 17, 23]. Furthermore, new developments in AI technology have discovered its potential in art-making, easing the drawing process and reducing frustrations associated with traditional tools [4, 12, 16, 22, 31].

Due et al. (2023), for example, worked with professional art therapists to develop DeepThInk, a web-based digital art-making tool intended to facilitate human-AI co-creation in therapy sessions. With its features, this tool encourages users' creativity and expressivity while lowering the threshold for artistic proficiency [12]. Moreover, explorations into human-AI co-creative drawing processes have led to programs like Coco Sketch, Drawing Apprentice, and DuetDraw, enabling collaborative art-making between humans and AI agents [12, 30]. Additionally, AI-driven systems such as GauGAN and SmartPaint generate images in response to user input, increasing the potential of collaborative art-making [31, 40]. Furthermore, AI-assisted mobile applications like "Mind Palette" merge art therapy methodologies with generative AI technology to address mental health crises and provide

therapeutic features derived from art therapy principles [48]. Moreover, AI has increasingly been utilized to support art therapists in assessing artwork, providing objective information to enhance therapeutic interventions [34]. In order to show how AI can improve therapeutic interventions, Seo et al. [34] conducted a pilot study to create a prototype AI-assisted assessment tool that supports art therapists in online therapy sessions. To enhance diagnostic capacities in the field of art therapy, Nuhu proposed an explainable AI framework that would assist with object detection and classification in photographs, as well as the synthesis of recommendations using an expert system [29]. Additionally, with the introduction of M2C, a deep learning model created to predict stress levels using data from psychological tests used in art therapy, Jin et al. [20] demonstrated the potential of AI to assist in therapeutic diagnostic procedures.

Despite these advancements, challenges such as capability uncertainty and output complexity persist in the integration of AI technologies into art therapy tools [12]. Design recommendations for human-AI interaction, were derived by Amershi et al. [3], emphasizing the importance of addressing these challenges. Furthermore, the shift to online therapy sessions, accelerated by the COVID-19 pandemic, has resulted in technology-related issues such as a steep learning curve [34, 36]. In addition, maintaining confidentiality is crucial, necessitating robust privacy measures in AI systems deployed in therapy contexts [13, 46]. Principles like beneficence, non-maleficence, autonomy, justice, and explicability are highlighted by ethical frameworks, such the ones Florida and Cowlis presented [14]. These frameworks guarantee transparency in AI systems and promote ethical practice and trust in art therapy.

Previous research has predominantly concentrated on leisure art-making [9, 21, 30, 40]. However, the meaningful incorporation of human-AI co-creation in art therapy remains relatively unexplored [12] and the perspective of art therapists with AI-assisted tools are still insufficiently researched [34]. This represents a significant opportunity for innovation and advancement in the field, aligning with art therapy's emphasis on the process over the outcome [25, 30]. Through interviews with art therapists who have integrated a range of technological tools and applications into their practice, this research aims to explore the use of AI in art therapy. Through an examination of their perspectives, challenges and accomplishments, this research attempts to provide a thorough understanding of the potential implication of using AI in the therapeutic process. This research contributes to the growing body of knowledge on the integration of technology in art therapy and provides valuable insights for art therapy practice and research. The following sections will outline the research methods used in this study, present the findings from the interviews conducted with nine art therapists from the American Art Therapy Association, and explore the implications and recommendations for art therapy practice and research.

## Methods

The methodology employed in our study integrated design thinking and co-design methodologies, which have been previously validated in scholarly literature [35], to actively involve art therapists during the initial stages of feedback evaluation. This iterative approach facilitates the refinement of our design concept in anticipation of subsequent testing and developmental phases. Key milestones within this process included the development of user personas, prototyping of the design concept, and a collaborative co-design session subsequent to an interview with art therapists which will be detailed in the following sections.

## Design

### *User Persona*

To gain a better understanding of our co-design workshop participants, we created a persona

representing an art therapist. Personas are fictional characters that represent common user behaviors, helping designers in gaining insights into their target audience and ensuring a shared understanding within the design team. One significant advantage of having personas is their ability to keep designers focused on the core objectives of their target users, which enables them to prioritize both user and product requirements effectively [38]. Emily, a 35-year-old art therapist, is interested in utilizing innovative approaches in her art therapy sessions. Developing her persona involved considering her goals, challenges, and needs in her practice (Figure 1).

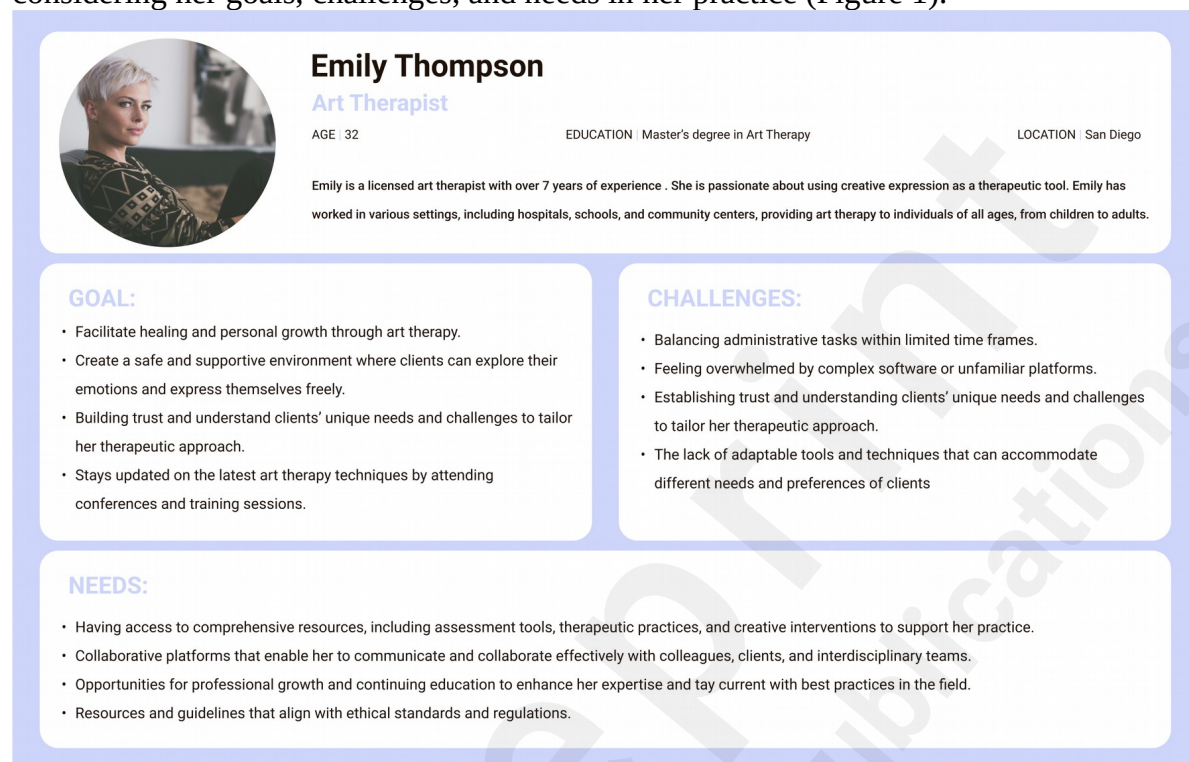


Figure 1. Emily's Persona.

## Concept Prototyping

In our study, we utilized AI generators, namely ChatGPT by OpenAI and Adobe Express, to develop a prototype for evaluating by art therapists. The prototype consisted of two main components: a series of cards and an AI-generated picture.

To begin the design process, we created a list of relevant words reflecting various emotions, drawing inspiration from Plutchik's Wheel of Emotion [32]. Further we expanded this list to include words of positive, negative, mixed or complex emotions, emotions of varying intensities, and those related to personal growth. Additionally, we incorporated words describing individuals or groups connected to the client, locations, and visual descriptors for environments aiming to cover all aspects of image creation.

Using this list of words, we utilized Figma platform to categorize the words into six primary categories: Emotions, Feelings, Relation, Companion, Environment, and Visual. Each main category was further subdivided into sub-categories to facilitate easy navigation and selection for both clients and therapists (Figure 2).

As depicted in Fig 2, each category is represented by cards containing words relevant to that specific category. Under the emotions category, sub-categories included "Joy, Happiness, Gratitude, Love, Hope, Relief, Serenity, Empowerment, Anger, Loneliness, Sadness, Fear, Disappointment, Frustration, Guilt, Anxiety." Feelings were categorized into sub-categories such as "Bittersweet,



Conflicted, Ambivalence, Nostalgic, Empathetic, Hopeful, Regretful, Grief, Panic, Jealousy, Shame." Relations sub-categories encompassed "Family, Friends, Significant other, Co-workers," while companionship sub-categories featured "Nobody, Family, Friends, Stranger, Co-workers, Pet." Environmental categories comprised cards representing "Home, School, Office, Public, Imagination" and "Day, Night, Spring, Summer, Fall, Winter, Vibrant, Dull, Calm, Chaotic, Fragile."



Figure 2. The list of words

Subsequently, we utilized Adobe Express's Generative AI Text to Image function to create a picture illustrating the selected emotions and feelings. We provided Adobe Express with a prompt listing specific emotions and contexts: "Demonstrate these feelings: Love, Hope, Loneliness, Conflicted, Nostalgic, Significant other, Pet, Home, Night, Fall, Calm." In response, we received 20 different images to choose from. For the final selection, we aimed to ensure that the chosen image effectively captured the specified emotions and contexts. By carefully selecting an image that best represented these feelings, we integrated the chosen image (Figure 3) with the cards, creating our final prototype. This prototype, including a deck of cards and an AI-generated image, was then presented to art therapists for feedback and evaluation. At the beginning of the co-design session, we presented the deck of cards and sought their insights on the effectiveness of the cards and their coverage of essential words. Afterward, we showed them the image, explaining that it was generated by AI using a random selection of words from the cards. We wanted to know whether they considered the image represented those words and if they thought they could determine the necessary information about the client from the image if it were a client's work with AI.



Figure 2. The AI generated picture.

## Recruitment

This qualitative interview study explored the integration of AI in art therapy from the perspectives of art therapists affiliated with the American Art Therapy Association (AATA) in individual co-design sessions. Conducted by the primary author, the study received full approval from the Institutional Review Board (#21088) at the first author's university. Ethical standards were strictly adhered during the participant selection process, ensuring confidentiality, voluntary participation, and informed consent.

Participants were selected using a random sampling strategy at AATA's 54th Annual Conference. Informed consent was obtained verbally from all participants prior to their involvement in the study. Initially, ten art therapists were recruited; however, data from one interview were excluded because the participant was not actively practicing art therapy at the time, resulting in a total of nine interviews. The art therapists participated in one-on-one, in-person interviews, each lasting approximately 30 minutes. These interviews were scheduled at mutually convenient times and locations while maintaining participant confidentiality and voluntary participation.

Recruiting participants from this professional community through convenience sampling ensured their eligibility, providing time and cost savings compared to alternative approaches while offering diverse perspectives.

Based on insights from existing literature, the open-ended interview questions focused on three main themes:

1. The advantages of AI implementation in art therapy,
2. The disadvantages of AI implementation in art therapy,

### 3. Concerns regarding the use of AI in art therapy.

To ensure an accurate capture of participants' responses, interviews were audio-recorded. These recordings were transcribed verbatim and subsequently anonymized by assigning participant codenames (P1, P2, etc.) to maintain confidentiality. The authors independently open-coded the transcripts, then collaboratively consolidated and established general codes. Following this, they individually identified child-codes and underwent a joint review and refinement process to ensure comprehensive coverage.

Table 1. Demographics Information of the Participants

| P# | Education | Credentials | Client's age group          | Client's population  |
|----|-----------|-------------|-----------------------------|--|
| 1  | Master's  | ATR         | School-age, Teenager, Adult | Mental health  |
| 3  | Master's  | ATR-BC      | All                         | Clinical   |
| 4  | Master's  | ATR-BC      | Children, Adolescent        | Behavioral health, Acute hospitalized inpatients                               |
| 5  | Master's  | Pending ATR | All                         | General anxiety, Depression, Trauma, Wellness, Homelessness, Prison experience |
| 6  | Master's  | ATRP & LPCC | 12 and over                 | All  |
| 7  | Master's  | LCAT        | 20 and over                 | Forensic, Transgenders   |
| 8  | Master's  | Pending ATR | All                         | Older adults   |
| 9  | Master's  | ATR-BC      | All                         | Development, Behavioral, Quality of life needs                                 |
| 10 | Master's  | ATR & LCPC  | Kids, Young adults          | Mental Health, Autism, Neurodiversity, Anxiety, Depression, Grief              |

## Data Analysis

Data analysis was conducted using Braun and Clarke's framework [5] to identify patterns in the coded data. We utilized Otter.ai for AI-driven interview transcription and Taguette, an open-source web-based document tagging tool, for code creation. The first author approached the data without preconceived notions, coding the interviews to ensure an unbiased analysis. The coded categories were then cross-verified by the fourth author, fostering an iterative process to identify relationships between codes and develop preliminary categories.

## Results

The analysis of the interview data revealed two main topics central to our study: 1) the integration of AI in art therapy and 2) utilizing cards and AI generating tools in art therapy practices. Exploring these topics, we gain insights into art therapist' perspective on utilizing AI in art therapy, uncovering potential benefits and considerations.

### The Integration of AI in Art Therapy

Art therapists in our study acknowledged the possibility of incorporating AI into their practices,

noting that technology could improve several aspects of therapeutic interaction. Through analysing of insights gathered from interviews conducted during our co-design sessions, we discovered four primary sub-categories highlighting the benefits of AI implementation in this domain:

### ***Substitution of traditional approaches***

The study participants highlighted the potential of AI to overcome resistance or concerns regarding traditional art therapy practices. They believed that AI serves as a valuable medium for individuals who feel pressured to fulfil artistic standards or perceive themselves as lacking in artistic skill.

*“I think it'd be helpful in like jumping that threshold that people that hold back and they don't want to make art... who kind of stay with the “I've never made art, I'm not an artist” ... So that could potentially bridge the gap!” (P1)*

Our findings also revealed that the empowerment through AI not only creates a supportive environment for clients to freely explore their thoughts without judgment or fear but also offers practical assistance in decision-making processes related to thematic elements and material selection. Moreover, participants stated that the integration of AI technologies facilitates the creation of novel symbolic representations, enriching the creative process.

### ***Facilitating relationship building***

Art therapists in our study evaluated AI as a facilitator for initiating conversation and establishing connection between art therapists and clients. Through the utilization of AI-driven platforms, art therapists believed that they can seamlessly initiate conversations centered around the artwork generated, thereby creating a supportive environment for therapeutic exploration and expression.

*“...the image itself can bring in emotions and thoughts, and help a person be able to verbalize certain things.” (P8)*

### ***Enhancing healthcare access***

Insights from our participants highlighted the potential of AI-generated platforms in enhancing both the accessibility and effectiveness of virtual art therapy sessions. Through AI technology, therapists can seamlessly conduct sessions remotely, minimizing logistical obstacles often tied to traditional art supplies. Additionally, the portability and accessibility of AI tools via electronic devices increase their utility across diverse therapeutic settings. Moreover, from the perspective of art therapists, these AI-driven tools present valuable benefits to clients with physical impairments, reducing the challenges associated with handling conventional art supplies. As one of our participants mentioned, they would use it “if [the] client might have a disability or some challenges with identifying feelings” (P9).

### ***Fostering a client-centered approach***

The use of AI technology in therapy settings was seen by art therapists as essential to fostering client empowerment and autonomy. By granting clients the autonomy to interact with AI-generated tools independently and explore diverse creative directions, art therapists can organize sessions centered on personalized expression and self-directed exploration. As one of the participants highlighted that the “client's choice matters, and [art therapists] always give a choice to clients.” (P6). They believed that a client-centric approach not only enables clients to navigate their therapeutic journey but also provides a sense of ownership and agency over the creative process.

In addition to the mentioned benefits, art therapists in our study identified two primary

challenges with integrating AI into therapy: 1) divergence from traditional approaches and 2) ethical considerations.

### ***Divergence from traditional approaches***

Participants in our study added potential difficulties to art therapists and clients who may lack proficiency or comfort with digital tools. As one participant mentioned, "...with generational gap areas, [we] might not know how to generate AI or might not understand some of it." (P8). In navigating this transition, therapists emphasized the importance of maintaining the familiar therapeutic environment to ensure clients feel secure and heard while adopting AI tools. They noted that despite the possible advantages, there remains a concern about keeping clients' autonomy. Art therapists expressed caution that AI could unintentionally diminish the client-therapist relationship by minimizing the client's creative contribution.

Additionally, they also emphasized the importance of accurately reflecting clients' thoughts and imaginations. They pointed out that creating art with AI differs significantly from the traditional method, where clients independently select symbols and shapes from scratch. Art therapists expressed doubt about whether AI-generated images fully capture clients' emotions and perceptions as intended.

Art therapists further expressed concerns about the difficulties in maintaining cultural sensitivity and ensuring that AI-generated applications meet the varied expectations and backgrounds of their clients.

*"I think there are still a lot of cultural things to consider in using AI, especially if there are dialectical differences that people may have, or perceptual differences."* (P9)

### ***Ethical considerations***

The incorporation of AI in therapeutic contexts has raised ethical concerns among art therapists, particularly with regard to ownership rights, privacy, and confidentiality. The creation of safe storage and access procedures for AI-generated art is at the center of these concerns, with therapists stressing the significance of protecting client data while reducing the possibility of unauthorized access. There was also a discussion about ownership rights related to AI-generated works and how authenticity may be confirmed in this new paradigm.

### **Utilizing cards and AI generating tools in art therapy practices**

Building on the findings of our research, we discovered related insights shared among art therapists regarding using our cards in therapy sessions. These observations aligned with the four key sub-categories mentioned above:

#### ***Substitution of Traditional Approaches***

In our study, art therapists emphasized how the utilization of cards coupled with AI generation tools can effectively address the common forms of imposter syndrome and self-doubt that some clients experience. They believed that by providing a structured framework to explore emotions and thoughts, these cards offer a tangible means for clients to navigate their internal feelings, with a specific focus on emotional exploration and expression. According to our participants, this structured method gives clients the confidence to face and express their emotions while also giving them a sense of agency in navigating their emotional journey.

*"...it could definitely be helpful for people who have trouble making decisions on how they want to express themselves..."* (P5)

Moreover, our data indicates that incorporating AI technology into traditional art therapy procedures is viewed as a novel and engaging approach, particularly desirable for tech-savvy clients looking for artistic venues to express themselves expression.

### ***Facilitating Relationship Building***

The role of cards in promoting alternative modes of communication between art therapists and clients was revealed by data from co-design sessions. Participants in our study noted that the playfulness of these cards acting as a means to build connections, encourage conversation, and establishing a shared language for emotional exploration. While the cards offer a broad array of words, therapists pointed out their specificity, which enhances their effectiveness in facilitating deeper connections with clients.

*"I think it could be a good way in especially for those who are into the technology, that it might be a way for them to tell a story without kind of having to ..."* (P10)

### ***Enhancing Healthcare Access***

Participants highlighted the portability and convenience of incorporating cards among with AI generating tools into therapeutic sessions, emphasizing on their capacity to overcome logistical barriers associated with traditional art supplies. With the ability to participate in therapeutic activities without the burden of physical materials, this accessibility is especially beneficial for clients with cognitive or physical impairments. Moreover, the structured format of the cards simplifies the process of selecting words, offering a user-friendly alternative for individuals facing cognitive impairments.

*"They [clients] may not have the emotional vocabulary. So, this is a helpful guide to give them something to bounce off of. Also, for older adults, with different forms of dementia, this could be really useful as a prompt for people who might have like memory issues."* (P1)

### ***Fostering a Client-Centered Approach***

Art therapists emphasized the empowering role of integrating cards into therapy sessions, highlighting the agency afforded to clients in shaping their creative process. They believed that by enabling clients to select and combine words to prompt AI-generated imagery, this approach promotes autonomy and boost client confidence in their expressive capabilities. Discovered from our data, this iterative process not only broadens the range of creative possibilities but also fosters a sense of ownership and control over the therapeutic journey.

In addition to concerns around AI integration in art therapy, participants also identified issues with the utility of therapy cards, particularly regarding their accessibility and comprehensibility across diverse client demographics. A key challenge is the absence of verbal or linguistic elements in the cards, which might cause issues for clients with limited language proficiency or developmental considerations. Younger clients, for example, may struggle to interpret symbolic meanings due to their cognitive development stage, and individuals with cognitive impairments may find it difficult to process abstract concepts conveyed through visual stimuli.

*"... it was just amazing to me, but how does that come about for people who may not have the verbiage or don't have the language?"* (P7)

The absence of linguistic cues poses a substantial obstacle, particularly for clients with limited

language proficiency or developmental considerations. Art therapists mentioned younger clients, for instance, may struggle to interpret the symbolic significance embedded within the cards due to their cognitive developmental stage, while individuals with cognitive impairments may encounter difficulties in processing abstract concepts conveyed through visual stimuli.

## Art therapists' recommendations on AI implementation in art therapy

In our study, in addition to benefits and challenges regarding the use of AI and cards, art therapists provided insights and recommendations for optimizing the design and utilization of card-based AI tools. We categorized these recommendations, into four sub-categories: 1) client-centered approach, 2) mixed approach, 3) evaluation techniques, and 4) simplicity in design.

### *Client-centered approach*

The importance of incorporating client-centered AI tools into therapy sessions was stressed by art therapists. They stressed the need for clients to feel like active participants in their therapy, controlling the direction of the session according to their preferences.

*"... Through the collaborative process with the client, always getting their input, making them feel like a partner in the process, as opposed to being the one lead, they can almost act as the guide."* (P1)

To enhance engagement, therapists suggested allowing clients to customize cards with additional words, personalizing their experience. They also proposed giving clients the option to modify generated images, further empowering them in the therapeutic process. Additionally, therapists recommended incorporating a variety of artistic styles into the cards to suit individual preferences and improve the effectiveness of therapy.

### *Mixed approach*

Participants in our study recommended a balanced approach to incorporating AI tools in therapy sessions, suggesting their use as supplementary aids rather than primary components. They proposed initiating therapy sessions by utilizing AI tools to engage clients therapeutically, followed by continued exploration using traditional visual art materials. They believed that this approach seeks to provide clients with a comprehensive and fulfilling therapeutic experience that combines the benefits of both technological innovation and traditional artistic expression.

### *Evaluation techniques*

Art therapists emphasized the importance of integrating self-evaluation tools alongside AI technology to aid client reflection and monitor progress effectively. They recommended incorporating Likert scales and pre/post questionnaires within art therapy sessions following the use of AI tools, allowing clients to assess both their artwork and their overall session experiences.

*"... if you started here, and weeks later, making another image... maybe the computer can, label they started with these feelings and words. You can rate as they were on the negative scale. And then here they are in the positive."* (P4)

Furthermore, art therapists proposed integrating a feature within AI tools that enables clients to compare their current artworks with those from previous sessions. This functionality aims to enhance self-awareness and facilitate the tracking of therapeutic progress over time, to have



a deeper understanding of personal growth and development throughout the therapeutic journey.

### ***Simplicity in design***

Simplicity in design emerged as a key consideration for enhancing the usability of card-based AI tools. Art therapists recommended organizing words using the wheel of emotions to streamline the selection process and facilitate client expression. Categorizing words into positive and negative themes was also suggested to assist clients in navigating their emotional exploration effectively. Preferences varied regarding the presentation of cards, with some art therapists advocating for tactile physical cards for a tangible experience, while others preferred digital lists on screens for ease of selection and visualization.

## **Discussion**

### **Principal Results**

The findings of our study highlighted the potential benefits of integrating AI within traditional art therapy approaches. However, we also identified ethical and authenticity concerns associated with AI generative tools. Through the analysis of data from our co-design sessions and interviews, three main themes emerged: 1) maintaining a balanced integration of AI in art therapy, 2) placing clients at the heart of art therapy practices, and 3) innovation for facilitating access to art therapy. These themes will be further elaborated in the subsequent paragraphs while comparing them with prior studies.

### **Comparison with Prior Work**

#### ***Maintaining a Balanced Integration of AI in Art Therapy***

Our study highlights the significant potential of integrating AI into art therapy to enrich the therapeutic process. We identified that traditional art therapy sometimes falls short for clients who cannot express themselves artistically or verbally. Based on our data, we believe AI offers novel ways for clients to articulate their thoughts and feelings, particularly assisting those who may feel inhibited due to a perceived lack of artistic skill or fear of judgment which is a common barrier in traditional art therapy sessions [36]. In addition, our co-design sessions with art therapists revealed that AI can enhance communication and foster emotional expression, especially for clients who struggle to verbalize their emotions. Studies also show that AI tools provide an essential avenue for expression beyond words, benefiting those with limited verbal communication skills [10]. Therefore, our design combining cards with AI-driven tools can address these barriers. We discovered another key aspect of therapy sessions, which is the conversation between the art therapist and the client. Art therapists emphasized the importance of relationship-building and initiating conversations, particularly with clients who are resistant to talking. Our findings show that AI-generated tools can assist in these areas. It also shows that our design helps art therapists initiate conversations in a playful manner using cards, allowing clients to explore multiple categories and generate images based on their choices. This aligns with research indicating that generative algorithms help clients materialize their imaginations and emotions, facilitating communication through generated images [45,49].

However, the transition to digital tools is not without challenges. Despite the benefits, therapists raised concerns about the sensory limitations of digital artwork, which can detract from therapeutic experience, as noted in previous studies [8, 11, 41]. We also found that ethical considerations are another concern, including issues of privacy, authenticity, and therapist



competency. Therefore, ensuring data security, client confidentiality, and the authenticity of AI-generated images are critical challenges that need to be addressed while using AI in art therapy sessions.

Our study implies that utilizing AI in art therapy sessions can significantly improve the quality of therapy. By leveraging AI as a complement to traditional methods, therapists can enhance the therapeutic process, making it more inclusive and effective. However, balancing AI tools with traditional therapeutic practices is crucial for optimizing client outcomes. It is essential to ensure that both tech-savvy and non-tech-savvy clients benefit from these innovations. Thoughtful integration and adherence to ethical standards are also important.

### *Placing Clients at the Heart of Art Therapy Practices*

Art therapy revolves around tailoring sessions to meet individual client needs and preferences. Therefore, it is crucial that technological interventions, such as AI, support rather than diminish client autonomy and decision-making [19]. In our design, we incorporated cards that allow clients to choose words reflecting their thoughts and emotions, aiming to place the client at the center of the therapy session. Our findings indicate that this approach was successful, as art therapists believed it provided clients with confidence and autonomy, enabling them to guide the AI prompts according to their cards' preferences. By initiating discussions based on AI-generated images, also clients had a tangible starting point to explore their feelings and experiences, facilitating therapeutic dialogue throughout the session. Tools such as AI decision-support systems and AI-assisted online therapy platforms, as proposed by previous research [1, 2, 43, 44], aim to enhance therapist-client interactions and empower clients by actively involving them in the session process. Additionally, employing digital media in art therapy sessions can facilitate adaptation, communication, and relationship formation, offering diverse expression methods and promoting participant satisfaction and achievement [23]. Using cards as a session starter fosters a playful connection between art therapists and clients, which is particularly beneficial for clients who may struggle to articulate their emotions or discuss their condition in the beginning. However, concerns raised by art therapists in our study suggest that the use of AI may inadvertently diminish client ownership and control over the therapeutic process. To address this, our findings suggest providing clients with options to customize prompts, allowing them to add words if they cannot find suitable ones among the provided cards. Additionally, giving clients the autonomy to modify generated AI images can help mitigate these concerns. Our findings also suggest simplifying the process of selecting cards by categorizing words into larger groups, such as positive and negative emotions, with subcategories based on the Wheel of Emotions [32].

Aligning with the user-centered design approach and placing the client at the center of art therapy process, we realized the importance of self-evaluation, which our initial design lacked. Art therapists recommended adding a component to allow clients to perform self-evaluation after each session and compare their artwork to previous sessions.

While integrating AI in art therapy sessions helps clients gain more control and direct the sessions, from our study we discovered that we must avoid adding complexity through technology. Each introduced technology should reduce the burden on clients and art therapists, serving as an assistive tool. We found that the implemented technology should increase the sense of autonomy within the structured therapeutic framework and adhere to the principles of art therapy, such as self-expression and self-evaluation.

## *Innovation for Facilitating Access to Art Therapy*

Studies show that integrating technology into art therapy sessions offers a feasible alternative to traditional physical art materials, expanding therapeutic opportunities and improving access to art therapy [18, 27, 36, 47, 50]. Aligning with previous research, our design demonstrated AI's potential to remove barriers and enhance accessibility in art therapy sessions. Art therapists in our study highlighted AI's potential to facilitate sessions especially telehealth, noting the ease of utilizing digital materials compared to transporting physical art supplies. The portability afforded by technology has long been studied and holds promise for improving accessibility to therapy [36, 39, 41, 42].

Our design incorporating AI offers significant alternatives for clients with physical and cognitive impairments, empowering them to engage in the art-making process. Our study showed the benefit of utilizing cards, including organized word categorization, particularly for clients with cognitive impairments, to facilitate expression and communication. AI-generated tools have also proven beneficial for clients with physical impairments who cannot easily use tangible art supplies, in our study which also is supported by previous research [36].

Despite the benefits, however, we believe that challenges remain in the adoption of AI in art therapy. It is crucial to recognize that clients and art therapists may lack proficiency in utilizing technology [23, 36]. Therefore, it is essential to ensure that AI serves as an assistive tool for both art therapists and clients, alleviating rather than exacerbating difficulties in the therapeutic process, particularly for clients with physical or cognitive impairments. By integrating AI thoughtfully, our design can help increase access to healthcare for a wider range of clients, making art therapy more inclusive and effective.

## **Limitations**

We believe that while our study provides insights into the integration of AI in art therapy, several limitations necessitate further research to fully explore its potential and address key concerns. We propose the following recommendations for future studies:

- Our study exclusively focused on the experiences of art therapists. Future research should actively involve clients to gather their perspectives on the use of AI and our design in art therapy sessions.
- The methodology employed in our study limited our ability to explore the practical application of our design in real art therapy sessions. Subsequent research should prioritize testing the integration of our design in authentic therapeutic environments. This approach will enable researchers to examine the dynamics of interactions between art therapists and clients using AI-assisted tools, providing insights into its efficacy and potential challenges.
- Our design requires iterative refinement based on feedback from art therapists to enhance its usability and effectiveness. It is vital to simplify categories and optimize language to ensure accessibility for a diverse range of clients.
- In order to assess the effectiveness of our design within art therapy environments, assessment frameworks should be implemented. These frameworks should include self-evaluation methods for clients, as well as mechanisms for art therapists to track clients' progress over time. Our research showed that incorporating AI-generated images and words from previous sessions can facilitate ongoing assessment and intervention refinement.

As a result, future studies investigating the use of AI in art therapy need to utilize a multifaceted approach, taking into account the viewpoints of both clients and therapists. Future research can expand on this study of the potential of AI in therapeutic practice by addressing these limitations and applying our recommendations into practice.

## Conclusions

In this study, we utilized our design to conduct interviews with art therapists regarding the possible application of AI in art therapy. A deck of cards with words in six categories covering emotion, feeling, relation, companion, environment, visual, as well as an AI-generated image incorporating those words were two components of our design. We used AI tools, ChatGPT Open ai and Adobe Express, in combination with iterative refinement during the design phase to create a prototype that was specifically designed for use in art therapy sessions. Our goal was to improve the therapeutic experience for clients and therapists by merging the capabilities of AI generators with insights from art therapists and human-computer interaction design researchers.

## Conflicts of Interest

N declared

## Abbreviations

AI: Artificial Intelligence

CAT: Creative Arts Therapy

IoT: Internet of Things

ETC: Expressive Therapies Continuum

AATA: American Art Therapy Association

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## Supplementary Files

## Figures



Emily's persona.



## Emily Thompson

### Art Therapist

AGE: 32      EDUCATION: Master's degree in Art Therapy      LOCATION: San Diego

Emily is a licensed art therapist with over 7 years of experience. She is passionate about using creative expression as a therapeutic tool. Emily has worked in various settings, including hospitals, schools, and community centers, providing art therapy to individuals of all ages, from children to adults.

#### GOAL:

- Facilitate healing and personal growth through art therapy.
- Create a safe and supportive environment where clients can explore their emotions and express themselves freely.
- Building trust and understand clients' unique needs and challenges to tailor her therapeutic approach.
- Stays updated on the latest art therapy techniques by attending conferences and training sessions.

#### CHALLENGES:

- Balancing administrative tasks within limited time frames.
- Feeling overwhelmed by complex software or unfamiliar platforms.
- Establishing trust and understanding clients' unique needs and challenges to tailor her therapeutic approach.
- The lack of adaptable tools and techniques that can accommodate different needs and preferences of clients

#### NEEDS:

- Having access to comprehensive resources, including assessment tools, therapeutic practices, and creative interventions to support her practice.
- Collaborative platforms that enable her to communicate and collaborate effectively with colleagues, clients, and interdisciplinary teams.
- Opportunities for professional growth and continuing education to enhance her expertise and stay current with best practices in the field.
- Resources and guidelines that align with ethical standards and regulations.

The list of words.



The AI generated picture.

