



A theoretical model of emotional processing in visual artmaking and art therapy

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ABSTRACT

Current theoretical models of emotional processing rely mainly on detecting emotional processing through verbal, conscious, and cognitive processes. However, artmaking can potentially reveal embodied and implicit processes that may otherwise remain hidden in verbal expression. This paper attempts to close the scholarly gap by introducing a novel art-based emotional processing model that integrates emotional processing and art therapy literature, incorporating emotional meaning-making, awareness, acceptance, and memory consolidation. The art-based EP model explains the processes through which art creation may benefit emotional processing. It also elucidates the ways in which art therapy can be used to enhance therapeutic outcomes.

Art therapy (AT) is a mental health profession that facilitates generating and processing emotional material, consciously and unconsciously, through artmaking and reflecting on and conversing about the artmaking process and its products in the framework of a supportive relationship with a qualified clinician. Its goal is to improve well-being and overall health (American Art Therapy Association, 2023; Gazit et al., 2021; Malchiodi, 2011). Studies of AT show the artistic process involves evaluating personal behavior patterns, deeply exploring emotional content, and reflecting upon the artistic processes (Haeyen et al., 2020; Holmqvist & Lundqvist-Persson, 2023; Lusebrink & Hinz, 2020). Research on AT research acknowledges the importance of emotional aspects in therapy. However, only in recent years has emotional processing (EP) as a whole process been examined within AT, particularly through the Role of Emotional Processing in Art Therapy (REPAT) study (Czamanski-Cohen & Weihs, 2023; Czamanski-Cohen et al., 2020; Hebi et al., 2023, 2024).

Emotional processing is a cognitive, conscious or unconscious process

through which a person generates, represses, rejects, or accepts emotional responses to diverse life events (Baker et al., 2018; Greenberg & Safran, 1984; Rachman, 1980). Within the neurocognitive framework, Smith and Lane (2015) highlighted the involvement of somatosensory experiences and the integration of conscious and embodied unconscious processes for a conceptual, emotional meaning within EP. Individuals become aware of unconscious (implicit) and conscious (explicit) emotions through a multihierarchical integrative process known as *emotional awareness*, which involves identifying and naming unconscious somatosensory experiences as emotions (Lane, 2008). Productive EP requires several processes to occur, both verbally and nonverbally: awareness and attention to emotions, symbolizing of emotion, congruence between emotional expression and the reported emotional content, acceptance of the emotion in an exploratory attitude, regulation of the emotion sufficiently to prevent an overwhelming experience, having agency or responsibility for the emotion, and differentiation between emotions, potentially allowing for a change in the emotional experience

Abbreviations: AT, art therapy; EP, emotional processing; REPAT, Role of emotional processing in art therapy.

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(Auszra et al., 2013).

However, *maladaptive EP* may manifest as the unwillingness to engage in aversive experiences, such as painful thoughts, feelings, and experiences (Auszra et al., 2013). Individual styles regarding emotions or defensive mechanisms may sometimes disrupt adaptive EP (discussed in later sections of this article). A recent study based on observation and qualitative analysis revealed that EP difficulties occur when individuals are highly aroused but incapable of identifying, differentiating, or exploring their emotions (Pascual-Leone & Greenberg, 2007). Thus, they cannot resolve their distress (Pascual-Leone, 2018). Maladaptive EP is associated with decreased psychological well-being (Rupp et al., 2017, pp. 2039), higher levels of depression and anxiety (Leahy et al., 2018), and disengagement from activities (Thorsen et al., 2018) or social relationships (Lemerise & Arsenio, 2000) and may affect one's behavior (Smith & Lane, 2015, 2016). A vicious cycle in which psychological distress (Cohen et al., 2022), cognitive difficulties (Levkovich et al., 2018), or ruminative thoughts further inhibit and prevent the development of new coping strategies (Greenberg et al., 2007; Teasdale & D, 1999) may, therefore, occur. Moreover, EP difficulties are associated with impaired physical health (Hoyt et al., 2016; Koh, 2018; Weihs et al., 2008). Thus, improving EP through therapy interventions may improve both mental and physical health.

Emotional processing has been regarded as a form of problem-solving. It can occur by engaging with executive skills, for example, attention to aroused emotions, emotional problem-solving, or use of metacognitive processes (Pascual-Leone & Pascual-Leone, 2015). Other researchers have examined how new emotional experiences are incorporated into old memories through the *memory reconsolidation* learning process (Lane, Ryan et al., 2015; Nadel, 2020). Several researchers have claimed that the integration of an old emotional memory with a new one occurs by exposing an individual to memories and provoking a fear reaction (Foa et al., 2006). However, other researchers instead suggested that a safe environment is required to re-experience unbearable past emotions, integrate them with new memories (Greenberg, 2021), and further distinguish and name them (Lane, Weihs et al., 2015). Therefore, we included memory reconsolidation in our art-based EP model to understand further how individuals modulate and modify their emotions and create changes in EP.

The role of EP has been examined as a primary mechanism for change in AT. Studies highlighted the relationship between EP and symptoms such as depression, pain, and fatigue in breast cancer survivors and the potential to reduce them by promoting EP through AT interventions (e.g., Czamanski-Cohen & Weihs, 2023). A small pilot study investigated changes in EP, depression, and physical symptoms following an 8-week AT intervention program with breast cancer patients (Czamanski-Cohen et al., 2019). This study found large effect sizes for increased EP and reduced depressive symptoms. Despite a solid theoretical foundation and preliminary evidence supporting EP as a critical component of AT's positive effects, a theoretical model detailing the EP mechanisms through artmaking does not exist. Therefore, it is essential to develop such a theoretical framework. The art-based model derives from existing EP models and the theoretical body of knowledge aiming to conceptualize art's unique processes in facilitating EP.

Theoretical models of EP

The following four theoretical models describe EP as a sequential process whose execution and fulfillment may be disrupted at any stage. The working definition by Rachman (1980) referred to EP in the absence of cognitive factors, later extending the model by introducing cognitive influences on EP (Rachman, 2001). Baker et al. (2007) developed a more elaborate EP model in which they described the ability of individuals to modulate their emotions through three stages: an input of an emotional event, the experience of emotions, and finally, the verbal or behavioral expression of emotions. They later added maladaptive factors that can interfere with the three stages, like the *lack of attunement* factor that

occurs when individuals do not view emotions as useful or normal and may, therefore, prevent a fully integrated emotional experience (Baker, Owens et al., 2012).

Foa and Kozak's (1986) EP model of fear reduction proposed that exposure through mental imagery and the evocation of past painful experiences can activate two indicators of EP: bodily arousal and habituation. Discomfort-evoking information can be used to have a new emotional experience accompanied by new learning (Foa et al., 2006; Rauch & Foa, 2006). Finally, the sequential model of EP proposed by Pascual-Leone and Greenberg (2007) illustrates the state transition from distress to acceptance of emotions by engaging with psychotherapy. It can also modify distress by evoking an alternative emotional state that enhances functioning (Pascual-Leone, 2018). Using a small sample ($n = 34$) of individuals with depression, Pascual-Leone and Greenberg (2007) investigated various aspects of the model in two separate studies and validated them through multivariate analysis. They found that EP improvement is nonlinear and cyclical, moving forward and then backward, reverting to earlier levels of processing (Pascual-Leone, 2009).

These four EP theories address neither artistic experience nor nonverbal emotional expression. Emotional processing through artmaking needs further conceptualization within an AT framework because it may contribute to the EP theory by explaining (a) the process of embodiment when tactilely engaging with art materials, (b) the experience of the transition from implicit and unconscious emotions to explicit ones through, for example, the creation of shapes, colors, and lines on paper, and (c) the further observation of bodily experiences and reflection upon them through art creation with the support of a qualified art therapist.

Our aim was to expand the theoretical knowledge regarding EP in visual artmaking and AT by proposing an art-based model of EP. Further, because artmaking can induce memory reconsolidation (Gerge & Pedersen, 2017; Hass-Cohen et al., 2018), this article aims to address the existing gap in the literature on memory reconsolidation as an integral component of EP models. We propose a theoretical two-cycle, three-step, art-based EP model in the context of artmaking within a therapeutic relationship accompanied by verbal expression that may be useful in research, training, and practice.

Proposed two-cycle model of EP through visual artmaking and AT

The proposed art-based EP model integrates (a) the existing theoretical EP models described herein (R. Baker, 2012; Foa et al., 2006; Pascual-Leone & Greenberg, 2007; Rachman, 1980), (b) conceptualization of EP through artmaking (Hinz et al., 2022; Lusebrink & Hinz, 2020), (c) mechanisms of change in AT (Czamanski-Cohen & Weihs, 2016; Hass-Cohen & Clyde Findlay, 2015), and (d) research and clinical knowledge of EP in AT (Czamanski-Cohen et al., 2019; Hilbuch et al., 2016; Lev-Wiesel et al., 2022; Malchiodi, 2011; Schaverien, 2000). Fig. 1 illustrates the simultaneous emotional processes used during artmaking.

The proposed art-based EP model is cyclical and nonlinear, which aligns with the nature of artmaking, a practice that can incorporate simultaneous processes. Artmaking in AT is postulated to simultaneously affect cognitive aspects of emotion, body perception, and psychological processes (Lusebrink & Hinz, 2020). Thus, the relationship between the EP components in the art-based EP model is cyclical. For instance, art-based EP cycles may occur when emotions are articulated; they may be symbolized through colors, lines, and shapes, reflected upon, and made sense of. Artmakers can subsequently move back to previous stages in the model, changing and modifying the tangible art product according to new understandings. This process may occur several times over several sessions, enabling an AT client to gradually make more and more sense of the emotions that arise through emotional linkage, increased awareness of one's emotional state, and ultimately, potentially, acceptance of one's emotions.

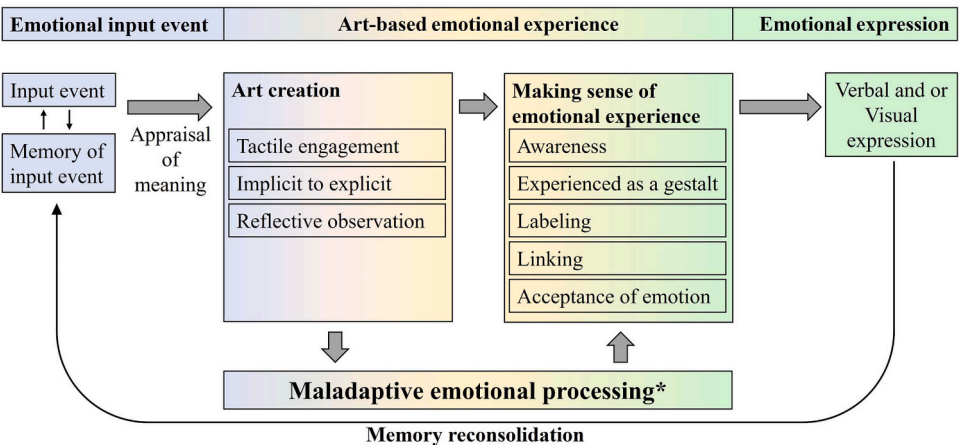


Fig. 1. Model of Emotional Processing (EP) in Visual Artmaking and Art Therapy, Note. * See Fig. 2, The art-based EP model stages: Emotional input event and appraisal of meaning, art-based experience, verbal or visual expression, and memory reconsolidation.

We suggest that art-based EP entails three main consecutive stages: (1) an initial emotional input event, (2) an art-based experience, and (3) emotional verbal or visual expression (Fig. 1). The interrelations between aroused emotions at different stages may affect each stage's components independently, leading to a two-cycle process. The first cycle occurs at the emotional-experience stage, in which artmaking enables the integration of three processes: (a) art creation to launch the emotional experience, (b) making sense of the emotional experience, and (c) transformation of difficulties in emotional processing, potentially changing dysfunctional emotional processing styles (Fig. 2). The second cycle occurs at the third stage, during visual emotional expression, potentially resulting in memory reconsolidation that may or may not loop back to the reappraisal of the emotional event. The following sections elaborate on these processes.

Emotional input event and appraisal of meaning

Articulated emotional content, whether expressed consciously or unconsciously, results from an emotional input event (Smith & Lane, 2016) that may be detectable through the artistic process and product (Gantt & Tripp, 2016; Lev-Wiesel et al., 2022). The appraisal of emotional events integrates emotions, cognition, and action tendencies automatically, rapidly, and recursively (Scherer & Moors, 2019), generating responses to our environment and ourselves (Greenberg, 2021; Smith & Lane, 2015). During the creative process, AT clients have the opportunity to use their embodied experience to interact with themselves and their environment, integrating sensory and kinesthetic experiences with cognitive and symbolic processes that occur recursively (Hinz et al., 2022). In a mixed-methods pilot study of melanoma

patients ($n = 63$), for example, drawings and in-depth interviews facilitated the cognitive, emotional, and behavioral reappraisals of the meaning of cancer patients' emotional experiences and advanced their understanding of their symptoms (Scott et al., 2015).

Art-based emotional experience

An art-based emotional experience consists of three components: (a) creating art, (b) making sense of the emotional experience, and (c) transforming difficulties in EP, leading to changes in dysfunctional EP styles. These components interact dynamically, resulting in an internal cyclical process that may affect EP productivity. Art creation and sense-making are assumed to co-occur through metacognitive core processes (Czamanski-Cohen & Weihs, 2016). These lead to repeated processing cycles that may result in a deeper understanding of emotional experience. Each of the three components is described next.

Art creation

Art creation includes (a) tactile engagement, namely the physical interaction with art materials, (b) turning implicit to explicit emotional content, and (c) reflective observation.

Tactile engagement

Art therapy differs from verbal psychotherapy in that it involves a sensory component. In art creation, embodied information processing can occur through the tactile engagement of touching, moving, or handling art materials (Lusebrink, 2016). Tactile engagement with art materials offers a sensory experience and the potential to transform implicit somatosensory latent information that cannot be easily expressed verbally into emotional sense-making and expression (Hinz et al., 2022). Embodied processes in artmaking provide a means to explore and reflect on how the body interacts with the art materials and the tangible art manifestations. Tactile engagement in artmaking may propel the emotional reorganization of embodied self-expression alongside self-reflection, promoting conscious awareness of unrecognized emotions (Czamanski-Cohen & Weihs, 2016).

Implicit emotional content becomes explicit

The hidden nature of latent emotional content prevents it from being expressed verbally (Greenberg, 2012; Smith & Lane, 2016). Clinical knowledge in AT postulates that art creation provides a platform for experiencing implicit emotional content (Ciornai, 2016; Kramer, 2001; Malchiodi, 2011; Naumburg, 1973) and expressing thoughts and emotions of which the person was previously unaware (Lusebrink, 2016). This concept is based on the premise that thinking in pictures is closer to the unconscious than is verbal expression and that through pictures,

Maladaptive emotional processing in visual artmaking and art therapy

Transformations in Difficulties in emotional processing	Changes in dysfunctional emotional processing styles
Uncontrolled	Discordant
Avoidance	Lack of attunement
Dissociation	Externalized
Suppression	

Fig. 2. Maladaptive Emotional Processing: Transformations in Difficulties With Emotional processing and Changes in Dysfunctional Emotional Processing Styles.

mental content can become partially conscious (Freud, 1962)—making verbal expression possible. Forensic assessments of child sexual abuse cases use this notion in clinical and legal settings (Lev-Wiesel et al., 2022; Talwar, 2007).

Reflective observation

Artmaking entails multileveled information processing incorporating top-down and bottom-up processes that interact and influence each other. Specifically, higher cognitive functions trickle down to sensory input through visual information processing, incorporating connections to emotions and the body's physical sensations. In the other direction, processes use basic sensory input to develop higher levels of awareness and cognitive control over movement, sensation, and emotion (Hinz et al., 2022).

Reflection encourages integrating the emotional experience through joint observation with the art therapist (Lusebrink & Hinz, 2020) and can help translate bodily sensations into discreet emotions (Rose, 2013). Examining and analyzing one's experiences, feelings, and thoughts through reflection on the artmaking process and product can then be performed to gain insight and self-understanding. For example, during a clinical AT session (from the first author's clinical experience) following brain surgery, a 4-year-old boy hammered nails into soft pink clay. According to his surgeon, hammers and stapler pins had been used to reposition the boy's skull bone and fix it in place. Although the surgery was conducted under total anesthesia, the AT session gave rise to an unconscious embodied content through artistic expression.

As this extreme example illustrates, AT sessions prompt the need to seek strategies for confronting previously unconscious experiences. Artmaking in the presence of a supportive therapist can promote the articulation of emotions through metacognition, which enables individuals' perspective-taking while thinking about thinking (Flavell, 1979) and reflecting on mental content, such as monitoring memories, emotions, or thinking (Frith, 2012, 2021). An example may be a client stabbing a clay figure that represents an abusive caregiver but claiming the technique is to "create texture." The art therapist can assist the client in reflecting on the potential latent meaning of this physical action. This type of reflective observation in the context of artmaking and artistic experience provides an interpretation of the sensory experience that may lead to therapeutic breakthroughs.

Making sense of emotional experience

These art creation components can sometimes facilitate the process of making sense of an emotional experience, which entails (a) emotional awareness, (b) experience of emotion as a gestalt, (c) labeling emotions, (d) linking emotions to an arousing event, and (e) acceptance of emotions.

Emotional awareness

Emotional awareness is a cognitive-developmental skill through which individuals can articulate and translate their somatic sensations and coined emotions in varying degrees of specificity and granularity. According to the levels of emotional awareness model (Lane & Schwartz, 1987), the first two levels are experienced as implicit bodily sensations or action tendencies; subsequent levels are differentiated and explicit (Lane & Schwartz, 1987; Subic-Wrana et al., 2011).

In the existing EP model, awareness is perceived to occur in the experiencing stage (R. Baker, 2012). However, we propose that the art-based emotional experience differs because it involves a sensory component through which awareness arises simultaneously or sequentially throughout the artmaking process (Hinz et al., 2022) and is further reinforced by reflecting on the artistic expression (Czamanski-Cohen & Weihs, 2016). For example, one study used a structured observational framework to evaluate how clients' awareness evolved during and after AT sessions (Holmqvist & Lundqvist-Persson, 2023). The results suggested that clients became more attuned to their emotions, could ultimately articulate and reflect on them verbally, and that emotional

awareness evolved from initial experimentation to deeper exploration and reflection. Moreover, a practice-based, quantitative survey study of individuals with personality disorders ($n = 528$) found that AT increased insight and recognition when addressing personal patterns of feeling, thinking, and behavior (Haeyen et al., 2020).

In some cases, engagement with art materials or reflection on art products is sufficient to promote awareness (Kramer, 2001). In other cases, art therapists' interventions, such as asking questions or reflecting on or interpreting behaviors, are required (Naumburg, 1973). Promoting awareness through artmaking is postulated to occur reciprocally: New insights may occur during the artmaking process and, in turn, may be incorporated back into the art product, leading to new artistic expression followed by new emotional and cognitive constructs. Moreover, implicit content can gradually become conscious with the guidance of the AT practitioner and the observation of the artwork and reflective processes that ensue (Czamanski-Cohen & Weihs, 2016).

Experienced as a gestalt

An emotional experience occurs as a gestalt, referring to the holistic nature of perception, integrating bodily sensations, evaluations, positioning, and shifting attention as interconnected elements (Lambie, 2020), in which the psychological sense-making of emotions is unified and complete (R. Baker, Owens et al., 2012). Artmaking utilizes visual expression that may promote the gestalt of meaning-making of emotional experiences. It engages multileveled information processing (Lusebrink, 2004; Lusebrink & Hinz, 2020), intertwining the creator's sensory-motor, emotional, cognitive, and intuitive functioning levels (Ciornai, 2016). In an AT session, the client's visual expression is accompanied by the art therapist's observations and reflections on the art creation process, facilitating a gestalt experience of emotions.

Labeling

Labeling an emotion means putting the feeling into words (Lieberman et al., 2011). It is the act of symbolizing bodily felt emotional experiences (Greenberg, 2012) and communicating an emotion explicitly (Barrett, 2012). However, it would benefit EP if emotions were fully experienced before they were labeled (Greenberg, 2021). Making art may offer individuals the opportunity to remain with the unfamiliar content aroused by the articulated product and delay their understanding for further artistic inquiry before it is labeled (Egberg & K, 2008). Artmaking may be an ostensive communication medium (Springham & Huet, 2018), highlighting or indicating that nonverbal information can be communicated. It can enhance empowerment: One can explore, decide, and reinvent the image overtly, promoting the labeling of aroused emotions (Hass-Cohen et al., 2014). A randomized, controlled trial that examined the effect of drawing on the description of negative life events of 30 children whose fathers were maladaptive substance users demonstrated how labeling promotes EP. The study found that children's narratives were more detailed and included more emotional content after the drawing activity (Lev-Wiesel & Liraz, 2007). This example is also helpful in understanding how artmaking can promote linking.

Linking

Linking emotions to their triggering event promotes making sense of them and EP (R. Baker et al., 2007). According to the sequential model of EP, creating distinctions between innate, preorganized primary emotions and symptomatic secondary emotions (Damasio, 1998; Greenberg, 2021) is one of EP's main tasks (Pascual-Leone, 2018). Awareness of the event-creating emotion may serve adaptive behavior because maladaptive functioning may occur when preorganized primary emotions are developed into defensive or inhibitory secondary emotions (Lemerise & Arsenio, 2000). Art creation can encourage consciously describing emotions and linking them with the triggering event (Leventhal, 1982). The next section extends the discussion of artmaking's transformative power following negative-emotion-provoking

events.

Acceptance of emotion

Acceptance of emotions occurs when individuals are accepting, friendly, and nurturing toward their emotions (Politi et al., 2007) and express them clearly and distinctly (Weihs et al., 2008). Acceptance of emotions has been added to the art-based experience because it plays a central role in achieving meaning through symbolism (Pascual-Leone, 2018).

The expressive therapies continuum, a conceptual framework specific to AT, categorizes and delineates artistic expression across three levels: kinesthetic/sensory, perceptual/affective, and cognitive/symbolic (Lusebrink, 2016). It offers a framework for analyzing AT processes developed from mental and graphic activity and progressing to complex visual information and cognitive development stages. The cognitive/symbolic level encompasses the creative expression's transition from cognitive operations to the affective and sensory symbolic expression characterized by color and abstract representation (Lusebrink & Hinz, 2020).

Embodied art processes facilitate the acceptance of previously rejected emotions (Hass-Cohen & Clyde Findlay, 2015). This can occur in two ways. First, the art therapist's nonjudgmental attitude toward the art expression may facilitate the clients' self-acceptance (Kaimal, 2019). Second, the artmaking process can involve playfulness, leading to an overall positive experience, even when dealing with difficult or negatively valenced emotions (Chilton, 2013; Czamanski-Cohen & Weihs, 2016). Moreover, artmaking may facilitate the acceptance of emotions by transforming difficulties or dysfunctional coping styles into sublimated visual expression (Kramer, 2000; Ulman, 2001).

Changes and transformations in dysfunctional or difficult EP styles

Emotional processing difficulties may occur when defense mechanisms disrupt the emotional experience (avoidance or dissociation) or expression of emotions (lack of control or suppression; Baker, Owens et al., 2012, 2007). Individuals differ in their EP coping styles. *Emotional style* refers to one's attitude toward, understanding of, and attributions about emotions (Baker et al., 2007). For instance, a *discordant style* occurs when an individual experiences emotions as unpleasant, confusing, and unclear. *Lack of attunement* refers to a style in which emotions are regarded as unacceptable or are misattributed. Individuals who are aware of bodily emotions but attribute them to external causes may use an *externalized style* (Baker, Owens et al., 2012).

Artmaking may help EP difficulties by bypassing censorship, such as in dissociation (Laird & Mulvihill, 2022; Lev-Wiesel et al., 2022), avoidance, or suppression of overwhelming content (Holmqvist & Lundqvist-Persson, 2023). Moreover, visual and concrete articulation through artmaking may bypass inhibitory defense mechanisms and transform them through sublimation (Ulman, 2001). For instance, self-harm behaviors due to intolerance of negative and difficult emotions may instead be symbolized as using glass fragments in artistic expressions.

A case study of a 19-year-old girl hospitalized in a psychiatric hospital for severe self-harm illustrates how her destructive tendencies were transformed into art. When used as part of AT, dangerous objects like razors, spike nails, and glass transformed from objects designed for self-injury to components of the girl's artistic work (Shapiro, 2005). Unattuned emotions may transfer to the artwork (Hilbuch et al., 2016; Lev-Wiesel, 2000) and can facilitate the creator's creative choices and embodied engagement in the artmaking. The transformation of maladaptive emotions and the creation of new meaning requires bottom-up and top-down processes because simple expression is usually insufficient (Lane, 2008). Emotional processing occurs when emotions are fully experienced—they are accessed and articulated, their significance explored, and new meanings created. Only then can distress lead to words and recovery processes unfold (Greenberg, 2021). Abstract, ambiguous, or vague artistic expressions of difficult, unrefined emotions

may become explicitly visualized and symbolized for further cognitive thinking and making sense of emotions, facilitating a deeper understanding and, possibly, propelling a revision of dysfunctional coping styles that hinder EP.

Emotional expression

In the art-based EP model, individuals' emotional expression is either verbal or visual, evident in their verbalization or symbolization of emotional experiences (Kennedy-Moore & Watson, 2001a). Emotional expression enhances a person's insight by moving the experience to a position where they can reflect upon it. It improves the individual's ability to cope with stressful situations and adapt to interpersonal relationships (Kennedy-Moore & Watson, 2001b).

The art-based EP model, therefore, refers to art creation as articulating visual emotional expression alongside and as a mediator of verbal expression. Art-based EP may especially benefit individuals with difficulty communicating their experiences by enabling them to recognize and understand their emotions (Lev-Wiesel et al., 2022; Springham & Huet, 2018). As supported by psychosomatic medicine and neuroscience research, a gradual approach to revealing implicit emotional content, enabled by artmaking may assist indecisive, hidden, or unrecognized emotions in becoming available for explicit expression (Lane, 2008; Lane et al., 2015), potentially improving EP (Forgas, 2008). Emotional expression through art may be repeated for a second cycle through memory reconsolidation.

Memory reconsolidation

Memory reconsolidation is the process by which a memory is updated and re-encoded whenever it is retrieved (Lane et al., 2015). Recollective experiences stabilize, strengthen, and change the memory, updating and modifying it, leading to changes in the recollected event and associated emotional response (Nadel et al., 2000). According to Lane et al. (2015), memory reconsolidation promotes new appraisals of emotions by synthesizing old with new practiced experiences (Nadel, 2020; Nadel & Lane, 2020).

When engaging with art materials, sensorimotor experiences and memory are activated (Gantt & Tripp, 2016; Gerge & Pedersen, 2017). The novel artistic experience may transform threatening memories of negative experiences into new refined memories (Hass-Cohen & Clyde Findlay, 2015). We propose that through a second cyclic process, which occurs in art-based EP, the memory of an emotional event may become reconsolidated, and the original experience may be reevaluated, resulting in a more adaptive and positive emotional response that may lead to reappraisal. Therefore, unlike existing EP models (R. Baker et al., 2007; Foa et al., 2006; Pascual-Leone, 2018; Rachman, 1980), the art-based EP model includes memory reconsolidation.

A safe environment like that in AT is essential for memory reconsolidation. It allows the client to remain involved and motivated without perceiving a threat to their safety while experiencing and expressing negative emotional content (Czamanski-Cohen & Weihs, 2016). A safe environment may permit implicit memories to become explicit, allowing painful memories to be articulated without existential threat (Hass-Cohen et al., 2018; Hass-Cohen & Clyde Findlay, 2015).

Furthermore, memory reconsolidation requires the use of executive skills, such as attention to aroused emotions, emotional problem-solving, and metacognition, to stabilize old memories using new emotional solutions (Pascual-Leone & Pascual-Leone, 2015). The AT metacognitive core processing, which can be applied through reflective observation of the art process and the external product in a distant and nonthreatening manner (Czamanski-Cohen & Weihs, 2016), facilitates the integration of old memories with new emotional experiences (Huppert et al., 2020; Lane et al., 2015). By engaging in metacognition, the creator may reappraise how problems have been solved in the art manifestation and draw an analogy to subjective insights and new

experiences (Kaimal, 2019). The art-based EP model proposes that multilevel artmaking processes may combine old memories with new practiced experiences, resulting in recursive appraisals of meaning conducive to memory reconsolidation.

To recapitulate, the art-based EP model conceptualizes the unique contributions of artmaking and its embodied processes in three stages: an emotional input event and appraisal of meaning, an art-based emotional experience, and its expression. The art-based EP model is characterized by a two-cycle sequence portraying a recursive path of EP. Initially, when the emotional experience is integrated with the art creation, EP may be reinforced by recurrent loops that may occur between the artmaking and accompanying insights. These change and transform difficulties and dysfunctional styles and linger further in emotional exploration. Subsequently, emotional expression may lead to memory reconsolidation. Through the embodied processes of art creation, implicit mental content may be articulated visually and potentially expressed verbally, contributing to a more holistic EP.

Research and clinical implications

The art-based EP model proposes a framework for further research and practice. Given the strong association between EP and clients' physical and mental health and the potential for facilitating psychotherapeutic change (Pascual-Leone & Greenberg, 2007), the proposed art-based EP model offers a comprehensive understanding of clients' EP. Distributing the outlines of the art-based EP framework and its various components among therapists and using them as a reference can reinforce communication and effective collaboration between practitioners.

Furthermore, the suggested model may contribute to understanding EP as a mechanism of change through AT, contributing to art therapists' ability to design and conduct research on EP in AT. Current EP models may consider how artmaking can contribute to understanding implicit and embodied processes and how the model suggested herein can further define EP through other means of nonverbal expression, such as music, dance, or drama. Among the possible future research endeavors in the emerging field of EP in AT are (a) design and implement empirical studies to test the model, (b) inform and develop an assessment and diagnosis tool to measure EP in art, and (c) identify differences between population groups in terms of how EP can be most productive. Consequently, AT training programs may incorporate the art-based EP model as a way to advocate for creative and artistic processes as unique facilitators of EP.

It should be noted that the proposed model focuses on EP through AT but could likely offer insights on EP through art creation more broadly. Using the art-based EP model, therapists can make a more accurate diagnosis, which is crucial for developing effective treatment plans and tailoring interventions to the client's individual needs. This may include understanding maladaptive processing patterns and facilitating clients' achievement of more adaptive and meaningful states. Moreover, art therapists may focus on EP components that require additional therapeutic attention and AT core processes that can facilitate preferable intervention. It may help therapists to select appropriate therapeutic approaches and set treatment goals that align with the model's principles.

The art-based EP model will potentially assist clients in expressing their emotions, especially those who struggle to communicate their emotions verbally (Lane et al., 2015), through its unthreatening experience that bypasses difficulties in EP. We hope to make art therapists

more aware of EP by highlighting the processes that can potentially enhance and deepen enduring psychotherapeutic change in AT, thereby improving clients' quality of life, well-being, and health. (See the appendix for an illustrated case-study vignette of a client's experience.).

Limitations

The present art-based EP model constitutes an attempt to explain how EP occurs in AT. Due to its complexity, it most likely cannot be examined empirically in one study. In addition, the model may not encompass all the benefits visual artmaking provides, so therapists should also be flexible in adapting their approaches to clients' needs and circumstances. The art-based EP model may not apply to other artistic expressions, such as music or dance. Further empirical research should examine the proposed model outside the visual AT framework and within other creative arts therapy modalities.

Conclusion

This paper introduces a two-cycle theoretical model of EP in visual artmaking and AT. The art-based model complements existing EP models. It can enrich AT research and enhance clinicians' therapeutic capacities by improving our understanding of EP as it occurs in artmaking and AT, encompassing implicit and latent emotions that may be depicted and transformed through visual expression.

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CRediT authorship contribution statement

Czamanski-Cohen Johanna: Supervision, Conceptualization, Methodology, Writing – review & editing. **Miri Cohen:** Supervision, Methodology, Writing – review & editing. **Weihs L. Karen:** Conceptualization, Writing – review & editing. **Asnat Weinfeld-Yehoudayan:** Conceptualization, Methodology, Writing – original draft, Writing – review & editing.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data Availability

No data was used for the research described in the article.

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Appendix A. Emotional processing through art and art therapy: a case vignette of a breast cancer survivor

Lily (pseudonym), a breast cancer survivor in her 50 s, participated in an 8-week online group AT program as part of the REPAT study (Czamanski-Cohen et al., 2020). This case study highlights her experiences during Sessions 6, 7, and 8 as described in the REPAT interventions protocol (Czamanski-Cohen & Weihs, 2023). For the patient's privacy, the text has been removed from the drawings.

In Session 6, participants were asked to draw two sides of a current conflict in their lives, aiming to increase cognitive flexibility and reframe perspectives. In this session's drawing (Figure A.1), Lily explored the theme of initiative versus lack of initiative by drawing a woman holding an umbrella in the rain (right side) and a woman without an umbrella (left side). She stated that she is skeptical about the usefulness of breast ultrasound, sharing that a solid mass previously detected in a physical exam had been missed in screening. Lily said she prefers the woman without the umbrella: "I gather myself emotionally and continue to the next catastrophic event." However, she noted that she does not tend to prepare herself in advance. In this session, Lily described her fears verbally and explored her previously avoided, implicit emotional reaction to them through art. Symbolizing her emotional struggle, she drew the two women.

Session 7 focused on body image. Participants created art using body outline templates to increase interoceptive awareness and help process emotional content from implicit experience to explicit expression. The goal was to enhance the participants' distress tolerance and facilitate their expression of implicit experiences. In this session, Lily drew two overlapping figures and described that they represented the conflicting parts of herself—good and bad vibrations. The art therapist encouraged Lily to draw a unified body outline at home, incorporating both opposing figures, thus encouraging engagement through art to reinforce the integration of her two opposing parts.

Session 8 summarized all the clients had experienced and their progress (Figure A.3). Lily drew a path with three trees, flowers, mountains, and birds on the side. Reflecting on her medical journey, she noted, "In the absence of chemo or radiotherapy, I continued as normal, as if nothing had happened. But from the previous sessions' drawings [Figures A.1 and A.2], I can see there is a feeling of loss and lack of control that I did not acknowledge or allow myself to feel. But I need a sense of protection."

Lily reflected that her drawings helped her make sense of her emotional experience. She acknowledged that although she accepted breast cancer's adverse effects, she did not accept her own need for protection. The aroused and articulated emotions came to her awareness as she reflected on the drawing. Lily could now accept previously rejected emotions of fear of the unknown.

Her implicit emotions might have been somatic (being soaked in the rain, confusion, and muscle and bone pain symptoms). Although she described feelings of loss, they were somatic until the last session. She did not understand them until she looked at the images expressed in her drawings. After reflecting on her drawings in Session 9, Lily stated, "I reached a point where I understand that it is necessary to think and take control of myself for the rest of the way."

Finally, for Lily, art creation facilitated implicit emotional content, becoming explicit through tactile engagement with art materials. Emotional avoidance and suppressed implicit content—which had been difficult for Lily to acknowledge—were transferred into the tangible art product and transformed her awareness of them. Then, the art creation cyclical progress enabled her to make sense of previously unacknowledged emotions through reflective observation of the art product. Only then could Lily process her emotions through art creation and AT, making further sense of her emotional experience of coping with breast cancer.

We suppose that in the course of the interventions, Lily articulated her emotional experience of acquiring new experiences through art creation in light of how she preferred to cope with illness and what she acknowledged as necessary for her to feel safe. The memory of old patterns merged with the new ways she feels are best for her to cope with the illness. The question that arises is whether she can grieve and move on. Future research could examine how memory reconsolidation may have occurred and is expressed in new emotional events.



Figure A.1. Session 6 Drawing: Initiative (A figure with Umbrella) Versus Lack of Initiative (A figure without an Umbrella).

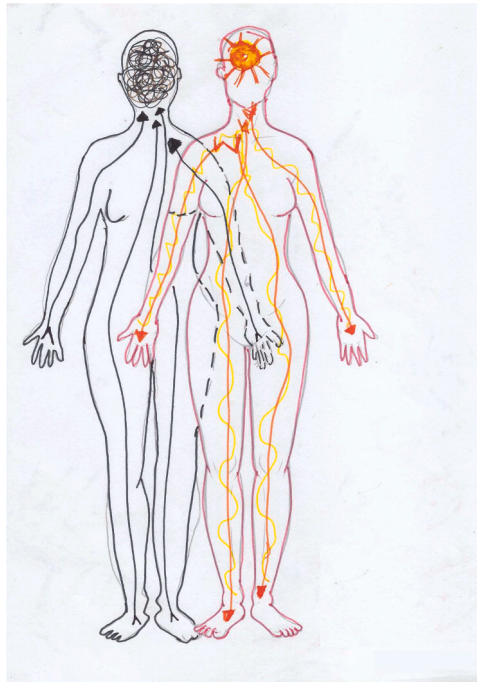


Figure A.2. Session 7 Drawing: Body Image.



Figure A.3. Session 8 Drawing: Client's Experiences and Progress.

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