

The Affect Regulation Training (ART)

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1. General Structure of ART

ART is a transdiagnostic intervention which synthesizes techniques from CBT, dialectical behavioral therapy, mindfulness-based interventions, self-compassion trainings, emotion focused therapy, and problem solving therapies in order to systematically enhance general ER skills. ART first introduces participants into the nature of emotions, their evolutionary background, their purposes, their potential risks and benefits as well as the mechanisms involved in regulating affective processing. After this general psychoeducation on affective processing, seven "neuroaffective vicious cycles" are introduced which might contribute to the maintenance of undesired affective states. From these vicious cycles, seven skills are deduced which have been demonstrated to effectively facilitate adaptive coping with challenging emotions. These skills include: Muscle and Breathing Relaxation, Nonjudgmental Awareness, Acceptance and Tolerance, Compassionate Self-Support, Analyzing Emotions and Modifying Emotions. Each skill is derived from a neuroaffective vicious cycle, then practiced in a long version and then shortened to a version which can be applied in very short periods of time (three seconds to three minutes). The shortened *ART Skills* are then chained together, creating the *ART Sequence*. This sequence can be used whenever participants suffer from any undesired affective state.

To effectively master this sequence, ART heavily relies on an intensive training regimen requesting participants to practice the whole ART sequence for 20 to 30 minutes each day and additionally engage in at least three short exercises over a period of at least six weeks. Participants are guided through these exercises through specific audio files and a set of 140 text messages automatically sent to participants. After partic-

ipants have mastered the skills, the focus shifts to practicing the learned skills in daily life to successfully cope with challenging situations. When working with clinical populations, we found it particularly helpful to teach and provide basic skills training in groups (three to eight participants) followed by a single therapy format to each participant to provide an in-depth training of skill utilization.

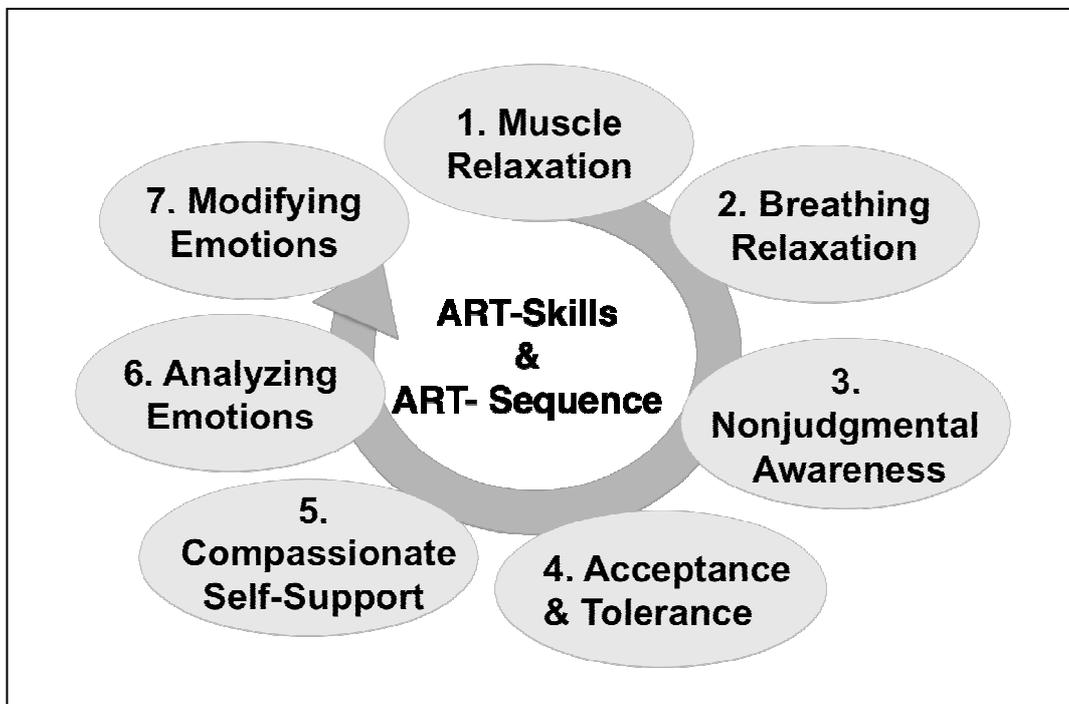


Figure 2: The ART-Skills and ART-Sequence (from Berking & Whitley, in press)

2. ART Skill #1: Muscle and Breathing Relaxation

Every skill building module starts with a short psychoeducation that explains how different areas of the brain may mutually activate each other and thus form "neurological vicious cycles" that can override processes responsible for down-regulating undesired emotions. For example, when the amygdala is activated by a situation that is interpreted as a potential threat, it initiates an increase in muscle tension and accelerates one's breathing. Because such physiological changes have in the past occurred in threatening situations, the muscle tension and rapid breathing themselves have become danger signals to the amygdala (i.e., classical conditioning or the concept of *somatic markers*). As a result, a vicious cycle may develop in which the activation of the amygdala causes increased muscle tension and rapid breathing, which in turn causes further activation of the amygdala and even more muscle tension and further rapid breathing, and so on. When participants realize that they are experiencing stress or negative emotions, they

can break through these vicious cycles by consciously relaxing their muscles and purposefully calming their breathing. By engaging in this, they can reduce activation of the sympathetic system, the limbic system and the brain stem. After this vicious cycle has been introduced and discussed with participants, we introduce participants into progressive muscle relaxation techniques combined with a simple exercise to calm one's breathing. Studies have consistently shown the effectiveness of muscle and breathing relaxation in the treatment of a variety of mental and physical disorders. Additionally, with reduced limbic activity through breathing and muscle relaxation, a shift can occur that changes the focus from primarily amygdala-driven limbic- and brainstem-focused responses back to more prefrontal, cortical responses that are reflective instead of reactive. Thus, reducing psychophysiological arousal with the help of muscles and breathing relaxation facilitates the subsequent use of techniques requiring more cognitive resources.

3. ART Skill #3: Nonjudgmental Awareness of Emotions

If the amygdala detects potential threats, it alerts the prefrontal cortex which then focuses attention and conscious processes of threat-relevant stimuli. This processing is very helpful in evaluating potential threats and in determining the most effective action. However, if this processing does not lead to a solution of the problem, an ongoing focus on aversive experiences may lead to an ongoing activation of the amygdala. This activation may cause the prefrontal cortex to focus even more attention on the problem, thus potentially resulting in even more intense processing of problematic stimuli and further activation in the amygdala, and so on. Individuals often try to rigidly suppress such negative thinking. However, this strategy is likely to have a paradoxical effect of increasing the intensity of negative thinking instead of reducing it. Thus, instead of fighting negative thinking, we encourage participants to simply observe the situation and their emotions without interpreting, judging, or reacting. When applying this technique as ART Skill #3, participants start with switching from regulating their breathing to simply observing it. Then, they start focusing on their sensual experiences (sensations in the body, sounds, odors, and visual perceptions), their thoughts ("What is the next thought that comes to your mind?"), their current salient wishes, desires and goals ("If everything would be going exactly according to your wishes, where would you be know? What would you be doing now? Imagine this perfect scene ... Shortly name the wish, or goal expressed in this image..."). At the end of this sequence, participants are invited to be-

come aware of their emotions without judging them. Instead, they are instructed to (a) find a matter-of-fact label for this emotion (e.g., "Anger"), (b) to rate its intensity on a scale from one to 10, and (3) to identify where the emotion is felt in the body. Finally, participants are invited to check for additional feelings that might lie behind the most prominent one and run the same 3-step process on them. This technique of becoming aware of one's emotions in nonjudgmental ways aims to recruit cognitive resources to facilitate effective emotion regulation. Evidence for the efficacy of nonjudgmental awareness comes from research indicating the effectiveness of perception training and mindfulness-based treatments.

4. ART Skill #4: Acceptance and Tolerance of Emotions

Challenging emotions, such as fear or anger, can be interpreted by the amygdala as threats to the goals of feeling good and of being in control. Thus, the amygdala may activate areas in the prefrontal cortex, including the right dorsolateral prefrontal cortex, which are responsible for avoidance behavior. Under the influence of these brain regions, people may attempt to eliminate these "threatening" negative emotions. However, this goal is often difficult to attain. The emotion generating system often acts autonomously from the areas of the brain that initiate willfully controlled behavior – a design that has provided a significant evolutionary advantage to our ancestors (i.e. if negative emotions could simply be switched off, they would not be able to fulfill the functions of initiating or facilitating adaptive behavior). Additionally, emotional reactions often cause significant changes in the body that take some time to dissipate, and as long as they are present they may impede the ability to make emotional changes. For these reasons, the goal of shutting down undesired emotions is often unlikely to be attained. Unsuccessful attempts to attain salient goals are a major trigger for amygdala activation and likely to increase the salience of the goal to get rid of the emotion. However, the increased amygdala activation is associated with more negative emotional arousal. Thus, the likelihood of attaining this goal is significantly reduced and a vicious cycle may develop in which fighting against the emotion only makes it stronger. To prevent this vicious cycle, it is important to develop the ability to accept and tolerate negative emotions (at least as long as they cannot be changed).

To enhance acceptance and tolerance skills, ART first works to help participants find a helpful definition of acceptance/tolerance and to understand why these skills are important. Then, participants develop their *Personal 5-Step Acceptance and Tolerance*

Plan that includes the following steps: 1) Consciously deciding to work on accepting the emotion; 2) Strengthening this decision by finding at least one argument why acceptance is helpful; 3) Working to see emotions as allies providing important information and supporting behavior which might be used for effective coping with challenging situations; 4) Becoming aware of one's ability to tolerate negative emotions for a certain period of time; and 5) Realizing that emotions are usually impermanent experiences which do not last forever but are likely to fade away (at least decrease in intensity) after some time. At the end of the *Acceptance and Tolerance Plan*, participants phrase an *Acceptance and Tolerance Statement* which they can tell themselves mentally until they feel that they can allow emotions to exist. In the ART sequence, this (suggestive) statement applies to the emotions which have been perceived nonjudgmentally at the end of ART Skill #3. Evidence for the therapeutic potential for the skills of acceptance and tolerance comes from the research on the effectiveness of mindfulness-based approaches and studies showing the effectiveness of Acceptance and Commitment Therapy in which acceptance of negative emotions and the willingness to experience unpleasant emotions in the interest of living according to personally relevant goals and values is one of the primary aims of therapy.

5. ART Skill #5: Compassionate Self-Support in Emotionally Challenging Situations

The next vicious cycle starts when someone feeling stressed or upset begins to self-blame or self-criticize. That person might think, "I can't do anything right. I am a complete failure. Something is wrong with me." These statements are self-inflicted attacks that threaten the need to feel valued, cueing additional negative emotions (e.g., anger, shame, guilt) associated with further activation of the amygdala. The activation of the amygdala through self-criticism and additional negative feelings increases the stress response in the body and in the brain, likely leading to more negative feelings which in turn leads the person to be even more self-critical. Activating a compassionate attitude towards oneself and engaging in self-supportive behaviors is an effective strategy to preclude this vicious cycle. ART participants learn how to provide compassionate self-support by imagining themselves in a burdensome situation accompanied by negative feelings. While re-experiencing these feelings, they learn to self-assess from the perspective of a kind and caring (albeit somewhat distant) inner observer. They are instructed to "let the feeling of compassion toward themselves arise from within," which creates a strong and warm feeling of self-empathy accompanied by the desire to help and a desire

to end their suffering. The observing part should then approach the suffering part of the participant, supporting and comforting that part by normalizing the negative emotions, providing encouragement, and maybe adding a physical gesture of compassion (e.g. giving it an imaginary hug). Preliminary evidence for the effectiveness of interventions that target compassionate self-support has been demonstrated. In a recent review about loving kindness and compassion meditation, the authors conclude that these interventions “when combined with empirically supported treatments, such as cognitive-behavioral therapy, may provide potentially useful strategies for targeting a variety of different psychological problems”.

6. ART Skill #6: Constructively Analyzing Emotions

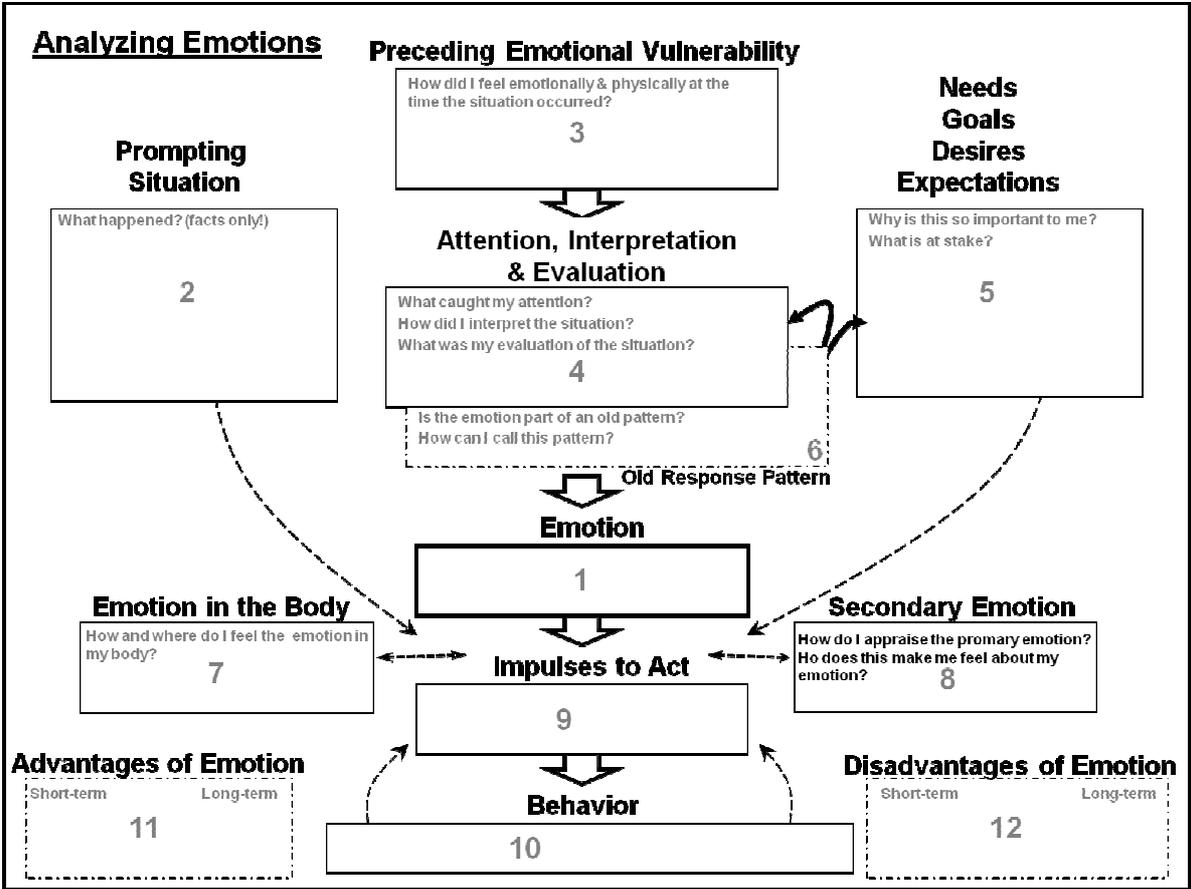


Figure 3: The Analyzing-Emotions-Worksheet

Under stress, the amygdala activates processes that release stress hormones into the brain. An excessive release of such hormones may strengthen amygdala functioning but may impair cognitive processing in other areas in the brain, including the prefrontal cortex and the hippocampus, which play important roles in the analysis of emotions. The ability to analyze one’s emotions leads to a greater understanding of how and why the

emotions develop, which in turn leads to a greater sense of self-mastery and control over one's emotions. If through weakened prefrontal and hippocampal functioning, the ability to self-analyze one's emotions is diminished, a vicious cycle develops in which the loss of orientation and control further activate the amygdala which in turn perpetuates the cycle. Thus, regaining a sense of mastery and control over one's emotions in stressful situations is critical. This can be achieved through understanding how and why the emotions develop. In Art Skill #6, participants are trained in utilizing the *Analyzing Emotions Worksheet* (depicted in Figure 3) to enhance this type of understanding. The worksheet proposes a general model of how emotions are cued and maintained. Elements of this model include external or internal events that cue the emotion; attention deployment towards and appraisals of these events; needs, wishes, and goals that are relevant for these appraisals; secondary emotions cued by appraising the primary emotion in a certain way; and body sensations, motivational impulses and behavior associated with the emotion which will all provide feedback into the emotion generating system and thus affect the subsequent course of the emotion. To clarify the course of subsequent action, the worksheet ends with a summary of the short- and long-term advantages and disadvantages of the emotion. ART trainers explain the model and help participants to apply it to their own emotions. Eventually, the skill will be included in the ART-Sequence in the form of the caring inner observer from ART-Skill #5 that guides the suffering part of the client through the analysis ("What situation prompted this feeling?", "How did you interpret and evaluate the situation?", "What was at stake in this situation?").

7. ART Skill #7: Effectively Modifying Emotions

ART Skill #7 aims to empower participants to actively modify quality, intensity or duration of an undesired emotion and thus to restore their sense of control. This skill provides a step-by-step process to modify emotions, which is based on the general problem solving model and utilizes the *Modification of Emotions Worksheet* depicted in Figure 4. Based on the summary of the long- and short-term advantages and disadvantages of the emotion from the Analyses Worksheet, the Modification Worksheet first requires participants to set a goal for how they would rather feel. Then, for each relevant maintaining factor (i.e., each box of the worksheet) participants engage in brainstorming on how changes in these areas could help cue the target emotion. After participants have identified as many helpful ideas as possible for each box they select the most promising ideas to develop a plan on specific behaviors that they want to engage in to cue the target

emotion. Then, they put the plan into practice and evaluate the outcome. After the model is introduced and its use practiced with a couple of examples, Skills #7 is included in the ART-Sequence. Now, the compassionate, helping part guides the efforts to modify negative emotions (“How do you actually want to feel in this situation?” “What is your target emotion?” “How could you change the situation in order to achieve your target emotion?”). Evidence for the efficacy of the problem solving approach used in ART Skill #7 comes from research on problem-solving therapy.

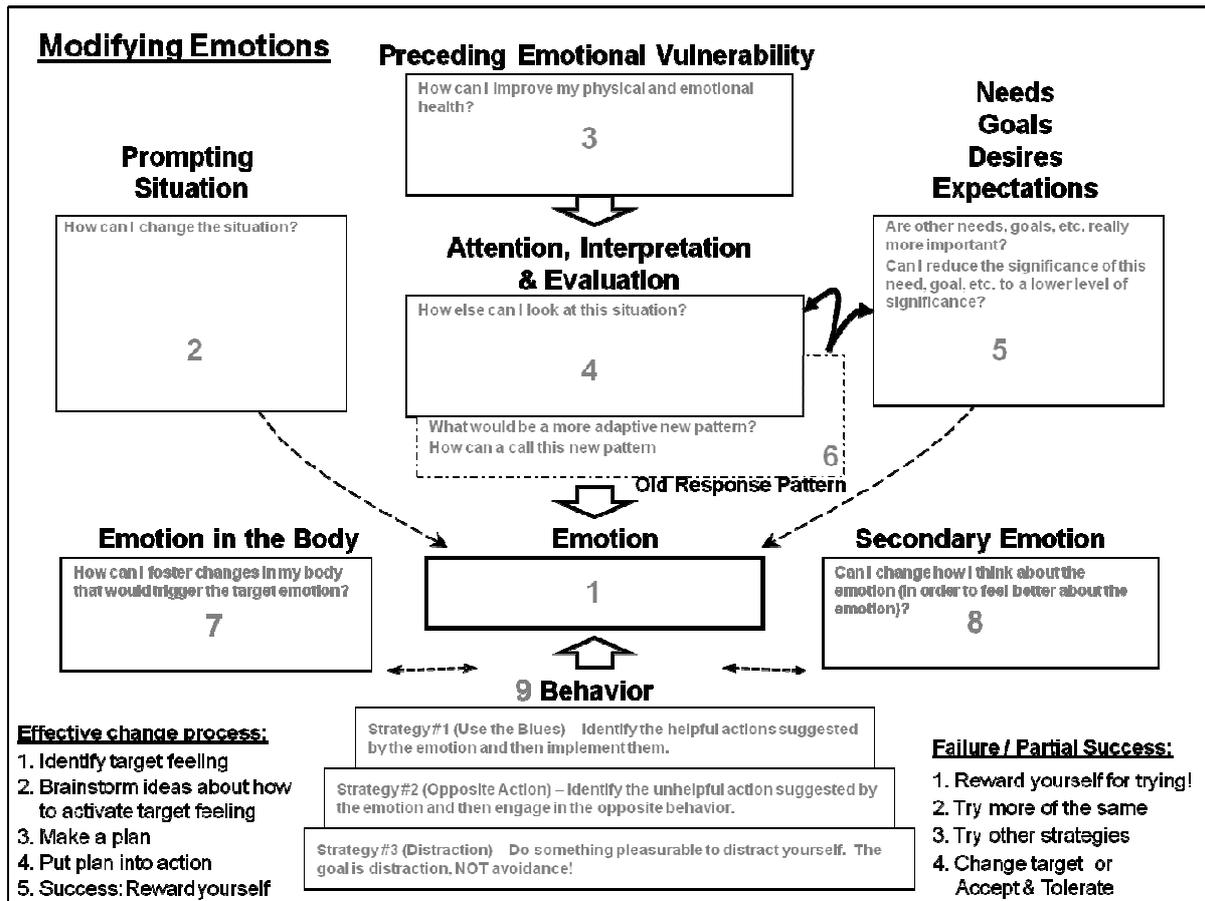


Figure 4: The Modifying-Emotions-Worksheet

Table 2 (continued)

Note. BDI = Beck Depression Inventory (primary outcome); HEALTH-D = Depression subscale of the HEALTH-49; ERSQ_{total} = Emotion-Regulation Skills Questionnaire total score; PANAS-N = Negative Affect Scale of the Positive and Negative Affect Schedule; HEALTH-IWB= Impaired Well-being Subscale of the HEALTH; ERSQ-Subscales: AW = Awareness; SE = Sensation; CL = Clarity; UN = Understanding; AC = Acceptance; RES = Resilience; SESU = Compassionate Self-Support; R. to C = Readiness to Confront (situations that cue aversive emotions); MOD = Modification of negative emotions. All correlations are significant with $\alpha < 0.01$.