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The Influence of Pre- and Intratask Emotional Experiences on Affective Working Memory Maintenance

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In two studies conducted in 2022, we examined the effect of images that elicit incidental emotions and the timing of exposure to these images, on the maintenance of positive and negative emotions in affective working memory (AWM). In Study 1, participants viewed a negative, positive, or neutral image while maintaining the emotional intensity of positive or negative emotions in AWM (intratrial). The results showed that experiencing a negative or positive incidental emotion (but not neutral states) improved the maintenance of negative (but not positive) emotions induced by another stimulus. In Study 2, participants were randomly assigned to experimental conditions. In the first condition, they viewed an emotion-eliciting image while maintaining an emotion elicited by a different image (replicating Study 1). In the second condition, they viewed the emotion-eliciting image before maintaining an emotion elicited by a different image. The results replicated those of Study 1 and showed that the timing of experiencing the incidental emotion (before or during the task) did not affect AWM. They also suggest that maintenance of negative emotions increases irrespective of the emotional context surrounding them. These findings offer valuable theoretical insights into the role of emotional contexts in intensifying negative emotions, potentially guiding future research on interventions designed to modulate negative emotions.

Keywords: affective working memory, incidental emotions, working memory, emotion maintenance

Supplemental materials: https://doi.org/10.1037/emo0001464.supp

Affective working memory (AWM; Broome et al., 2012; Mikels et al., 2008; Mikels & Reuter-Lorenz, 2019; Waugh et al., 2019) refers to the ability to maintain hedonic properties of stimuli in the absence of the emotion-eliciting stimuli. In other words, AWM can be seen as our own emotional clipboard that allows us to hold on to emotional aspects of the stimulus even after it is no longer present. To fully understand the concept of AWM, researchers have compared it to cognitive forms of working memory (WM; A. D. Baddeley et al., 2019), which are responsible for maintaining and manipulating verbal and visual information for a short duration of time in the service of goal-directed behavior (A. Baddeley, 1986, 2021). According to recent models (Frank et al., 2021; Mikels & Reuter-Lorenz, 2019), AWM is a domain-specific subsystem of WM that specializes in maintaining the feelings elicited by emotional stimuli, instead of maintaining the visual and verbal characteristics of the stimuli. Prior research shows support for this claim, by demonstrating that AWM is partially separable from other forms of WM and is related to higher order emotional processes, such as emotion regulation and affective forecasting (Frank et al., 2021; Mikels et al., 2008; Mikels & Reuter-Lorenz, 2019).

Specifically, AWM plays a pivotal role in daily emotional experiences. For example, AWM is related to the ability to predict one's future feelings, which influences decision making and behaviors that affect mental health and social and economic outcomes (Frank et al., 2021, 2024). Moreover, AWM influences the way we experience and regulate emotions, with profound implications for psychological disorders (Gard et al., 2011; Gruber et al., 2013). This dynamic interplay between emotions and AWM in daily lives becomes

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particularly relevant when we consider common everyday experiences. Consider the following example: Picture John on his way to his birthday party. He is feeling excited and happy to celebrate his birthday with his friends and family. Now imagine that just before the party, John sees a child fall off their bike and hurt themselves. How would exposure to this scenario affect his ability to maintain his positive emotions throughout the party? Would it be different if he were exposed to the scenario during the party? The current research aims to explore these questions: first, by testing whether the valence of incidental emotions elicited by one emotional stimulus (e.g., an injured child) experienced during the maintenance process of another emotion (elicited by another stimulus, e.g., birthday) affects AWM, and second, by testing whether the timing of the incidental emotion affects the maintenance process (during or prior to an AWM task).

Previous research has examined the complex interplay between emotional experiences and AWM. Mikels et al. (2008) found that a secondary emotion task that instructed participants to regulate their emotions interfered with emotional maintenance. Their results suggest that regulating emotions and maintaining them in AWM rely on similar affective processes. We recently found that individuals are capable of simultaneously maintaining multiple emotions in AWM (Kardosh et al., 2024b). In many cases, emotions are not actively regulated or maintained but are experienced incidentally, in response to task-irrelevant stimuli (Gross, 2015; Matthews et al., 2021; Sheppes et al., 2015). These incidental emotions arise in response to a different stimulus than the "target" stimulus, but they can influence the response to the target stimulus nonetheless (Lerner et al., 2015; Wyer et al., 2019). Therefore, the primary goal of this research is to explore the fundamentals of AWM by investigating how incidental emotions elicited by one stimulus affect the maintenance of emotions elicited by a "target" stimulus.

Although research on the effect of experiencing an incidental emotion on AWM is lacking, studies have examined affective influences on WM with inconsistent findings (for a theoretical review and analysis, see Mikels & Reuter-Lorenz, 2019; for a meta-analysis, see Schweizer et al., 2019). Although these studies focus on different subsystems of working memory (visual and verbal, instead of the maintenance of the emotions themselves), it is important to consider this work as it provides the closest available insights into how emotions might be stored and maintained within AWM. Relevant theoretical views also diverge in their predictions. The emotional enhancement hypothesis (Mammarella et al., 2013) proposes that emotional information is salient and receives prioritized processing. This prioritization enhances the cognitive resources allocated to the emotional information, leading to more detailed and robust retention of this information. In contrast, the emotional impairment hypothesis (Fairfield et al., 2015; Schweizer & Dalgleish, 2016) posits that emotional stimuli, particularly negative or distressing ones, divert attention and diminish the resources available for processing and retaining information in WM. Recently, Garrison and Schmeichel (2019) tested competing hypotheses on a WM capacity task with emotional versus neutral words as a between-subjects variable. They found that WM capacity was reduced for emotional compared to neutral stimuli. Their findings were consistent with the emotional impairment hypothesis and suggest that emotional stimuli compete for cognitive resources, reducing overall capacity for processing and storing information in WM. More relevant to our research, Jackson et al. (2012) examined ways that emotions impact the processing of other emotional information in WM. They showed that exposure to positive and negative words enhances WM performance for negative facial expressions but not for positive ones. They suggested that this surprising effect is due to increased vigilance caused by the negative faces (Flood et al., 2015; Öhman et al., 2001; Vuilleumier, 2005), facilitating activation and processing of the emotional words in WM. In turn, this activation induced elaboration of the negative faces and enhanced their maintenance (Jackson et al., 2012). Notably, this previous work has focused on the maintenance of the visual or verbal aspects of emotional stimuli, rather than the maintenance of the emotions themselves. Although these studies examine different subsystems of WM, they offer valuable insights regarding how emotions might be stored and maintained within working memory more broadly.

Timing of the incidental emotion is an important aspect of the effect of emotions on WM. While some studies (e.g., Jackson et al., 2012) presented the emotional stimuli during the WM trial, other studies showed that emotions can influence WM even when experienced prior to the maintenance process (e.g., Cavalera et al., 2018; Du et al., 2020; Maran et al., 2015; Qin et al., 2009; Thomas et al., 2016). These studies used diverse paradigms and yielded inconsistent findings (for a review, see Hou & Cai, 2022). Both negative and positive emotions were found to either impair or enhance WM (Cavalera et al., 2018; Figueira et al., 2018; Marcusson-Clavertz et al., 2020; Xie & Zhang, 2016).

In sum, although the effect of incidental emotions on AWM is important and relevant to daily life, research in this area remains sparse. Previous research and theoretical frameworks on WM are inconsistent and do not examine the affective properties of the maintained stimuli. Therefore, we conducted two studies to examine the effect of experiencing incidental emotions on AWM. The first study examined whether experiencing incidental emotions that vary in valence and arousal affects maintenance of emotions in AWM. The second study examined whether the timing of the experienced incidental emotions influences AWM.

In order to test the effect of incidental emotions on AWM, we modified the AWM task (Mikels et al., 2008). This task consists of two images presented sequentially for a short duration, separated by a delay period, and participants are asked to decide whether the emotional intensity of the first image is higher or lower than the second image. Mikels et al. used the accuracy of participants' emotional intensity ratings as an indication of their emotional maintenance abilities. Accuracy was calculated based on how well participants' choices of the image with the higher emotional intensity aligned with previously normed intensity values of the images (normative concordance; Mikels et al., 2008). In the current research, we modified this task by adding another image (to elicit an incidental emotion), positioned between (Studies 1 and 2) or prior to (Study 2) the two maintained images, and asked participants to rate the emotion elicited by this image immediately after it is presented. Rating this image should cause people to pay attention to the image and fully process it, thus increasing the likelihood that they feel the emotion induced by it. Moreover, in a similar study (Kardosh et al., 2024b), we introduced a more precise measure of maintenance (the latent maintenance construct), which considers peoples' tendency (bias) to choose either the first or last image. In the current research, we follow the same methodology and focus on the latent maintenance construct. We propose that several parameters can affect the way an experienced incidental emotion impacts AWM maintenance and made predictions in reference to these parameters. (1) Valence

congruence: the experience of an emotion increases attention to a subsequent congruent emotion (Hansen & Shantz, 1995; Pe & Kuppens, 2012; Scherer & Wentura, 2022; Schmitz & Wentura, 2012). Therefore, we predicted that experiencing positive or negative incidental emotions would increase AWM maintenance of congruent emotions. (2) Negativity: negative emotions are more salient and require more attention and cognitive resources than do positive emotions (Gokce et al., 2021; Gupta & Srinivasan, 2015; Niu et al., 2012; Plancher et al., 2019). Therefore, we predicted a stronger congruency effect of negative compared to positive emotions. (3) Arousal: emotional stimuli elicit higher arousal than neutral stimuli. Arousing stimuli draw attention more than low arousal stimuli do, and they can either increase or impair AWM performance (Schimmack & Derryberry, 2005; Zsidó, 2024; Zsidó et al., 2022). Therefore, while congruent emotions would increase AWM maintenance based on the congruency hypothesis, in cases of incongruent emotions, exposure to negative stimuli (which elicits negative incidental emotions) is expected to result in lower maintenance of positive emotions compared to exposure to neutral stimuli (Garrison & Schmeichel, 2019; Gokce et al., 2021; Plancher et al., 2019). Conversely, positive emotions were found to increase the maintenance of negative emotions (Jackson et al., 2012). However, because research on this effect is scarce, we did not make an a priori prediction regarding the effect of positive incidental emotions on maintenance of negative emotions. (4) Timing: because the effects of emotions prior to WM were inconsistent (Hou & Cai, 2022), we did not have an a priori prediction regarding the effect of timing of the incidental emotion on AWM.

Transparency and Openness

We report how we determined our sample size, all data exclusions (if any), all manipulations, and all measures in the study. All data, research materials, and syntax are available at https://doi.org/10.17605/OSF.IO/VPKY8 (Kardosh et al., 2024a). Data were analyzed using SPSS, Version 26. This study's design and analysis were not preregistered.

Study 1

Method

Participants

A total of 81 participants (65 identified as women, 13 men, three other) were recruited from DePaul University to participate in our study in return for course credit. The study was completed online, via the university recruitment system (SONA systems). To be eligible, participants had to be between 18 and 40 years of age, with correct or corrected vision, and have English as their first language. We aimed for at least a sample size of 72 to achieve power = .90 to detect a small effect ($f = 0.14$) in a within-subject analysis of variance (ANOVA; G*Power; Faul et al., 2007). In a similar study, Waugh et al. (2019) reported effects ranging from small to large effect sizes. Therefore, we predicted a small effect size and based our power analysis on this prediction. We recruited extra participants to allow removal of data from participants with high number of invalid trials (trials in which participant's posttask ratings of Picture 1 and 3 are identical; see below). Data from only one participant was removed due to a high number of invalid trials (7 *SD* above the mean) based on the interquartile method (Laurikkala et al., 2000; Smiti, 2020).[1] Therefore, the final number of participants was 80. Participants' mean age was 19.88 years ($SD = 3.07$). See Table 1 for additional demographic information. The data were collected in 2022.

Affective Working Memory Task

We employed a modified version of the task (Kardosh et al., 2024b) originally developed by Mikels et al. (2008). On each trial of the modified task, participants were presented with a sequence of three emotional pictures (Figure 1a) and were asked (a) to maintain the emotional intensity the first picture elicits in them and compare it to the emotional intensity the third picture elicits in them (i.e., target emotion). They were asked to determine whether the emotional intensity of the third image was higher or lower than that of the first image. Moreover, they were asked (b) to rate their emotional response to the second "contextual" image (i.e., incidental emotion) immediately after it appeared on the screen on a scale ranging from (1) *very negative* to (7) *very positive*.[2] A step-by-step approach was used to ensure that participants fully understand the task requirements and are comfortable with the procedure before they perform the task. Participants were first introduced to the task through an example of a trial for which the instructions were presented gradually to ensure clear understanding. They were instructed to maintain the emotion elicited by the first picture and then compare it to the emotion elicited by the third picture. Following this, they were asked to rate the emotion elicited by the second picture. After completing the example trial, participants were given three practice trials to familiarize themselves with the task, along with a preview of the instructions before beginning the maintenance task. A detailed description of these instructions is available in the Supplemental Materials. To distinguish between the pictures, Pictures 1 and 3 were framed in red, while Picture 2 was presented in a blue frame. Each picture was displayed for 3 s, with a 3-s delay between pictures, resulting in a total maintenance time of 9 s between Picture 1 and Picture 3. Participants had 3 s to rate their emotion (4% missing responses). The task comprised a total of 78 trials. The trials consisted of predetermined combinations of pictures, used in our previous work (Kardosh et al., 2024b), to ensure consistency. Half of the trials showcased positive target emotions in Pictures 1 and 3, while the remaining half showcased negative target emotions in Pictures 1 and 3. Each of the positive and negative picture pairs was presented with positive, negative, and neutral contextual pictures that elicit incidental emotions. The contextual images were randomly assigned to positive and negative target pairs separately, with a semirandom process to ensure balanced exposure across different valence categories. Although the combinations of trials were semirandomized, they were kept consistent across participants to maintain uniformity in the experimental conditions. In total, the positive and negative pairs were presented with each valence of the contextual image on 13 trials. To minimize order effects and potential biases, the order of the trials was randomized for each participant.

[1] Outlier cutoff was based on interquartile range (IQR) method, which defines outliers as any data which lie beyond 2.7σ from the mean. According to this method, the lower bound for outliers is Q1 − 1.5 × IQR (Q3–Q1), and the upper bound is Q3 + 1.5 × IQR.

[2] We use contextual image and incidental emotion interchangeably throughout the article, in which incidental emotion is the emotion elicited by the contextual image.

Table 1
Demographic Data on Participants From Study 1 and Study 2

Variable	Subgroup	Percentage	
		Study 1	Study 2
Ethnic group	White/Caucasian	62.5	87.62
	Other	17.5	3.1
	Asian	10	4.12
	Black/African American	10	5.15
Highest level of education	High school	98.85	40.2
	Bachelor's degree	1.25	42.26
	Graduate degree		17.52

Stimuli

The images in the AWM task were obtained from the International Affective Picture System (Lang et al., 1999). Positive and negative pictures for the first and third images (target emotion) were selected based on norms of emotional intensity provided by Mikels et al. (2008). Positive ($M = 3.48$, $SD = .70$) and negative ($M = 3.68$, $SD = .72$) picture sets were chosen, ensuring no significant difference in their intensity, $t(154) = 1.76$, $p = .08$. To calculate the distance between the intensities of the first and third pictures, we obtained the absolute value by subtracting the intensity of the first picture from that of the third picture. No significant difference was observed in the distance between positive ($M = 1.15$, $SD = 0.64$) and negative ($M = 1.14$, $SD = 0.70$) pairs, $t(76) = -0.1$, $p = .92$, ensuring that the positive and negative target emotion trials were equally difficult. In half of the trials, the third image ($M = 4.10$, $SD = 0.34$) was normed as more intense than the first image ($M = 3.06$, $SD = 0.58$), $t(38) = 9.29$, $p < .001$, and in the other half, the third image ($M = 3.0$, $SD = 0.36$) was less intense than the first ($M = 4.19$, $SD = 0.44$), $t(38) = 12.07$, $p < .001$.

Because the intensity norms of Mikels et al. (2008) did not include neutral pictures, we used the International Affective Picture System norms (Lang et al., 1999) for positive (valence: $M = 7.14$, $SE = 0.12$, arousal: $M = 5.04$, $SE = 0.15$), negative (valence: $M = 2.93$, $SE = 0.12$, arousal: $M = 5.39$, $SE = 1.5$), and neutral (valence: $M = 5.02$, $SE = 0.12$, arousal: $M = 3.10$, $SE = 0.15$) contextual images. The three picture types significantly differed in valence,[3] and arousal levels of positive and negative pictures significantly differed from those of the neutral pictures but not from each other.[4]

Posttask Ratings

Posttask ratings were employed to determine participants' performance in the AWM task and to calculate their maintenance score (Waugh et al., 2014, 2019). Participants rated the intensity of all the pictures presented during the AWM task (Pictures 1, 2, 3), on a scale ranging from 0 (*low emotional intensity*) to 10 (*high emotional intensity*). The order of presentation was randomized across participants. For each participant, an accuracy measure was calculated based on the percentage of trials in which their responses corresponded to their posttask ratings. For example, a correct trial would be if a participant indicated that Image 3 had lower intensity than Image 1 during the maintenance task and, in the posttask rating section of the study, independently rated Image 3 as having lower intensity on a scale than Image 1. Moreover, accuracy of 70% indicates that, in 70% of the trials, the participant's posttask ratings matched their higher or lower intensity decisions in the maintenance task. Trials in which Image 1 and Image 3 were rated differently (valid trials) were included in the analyses, whereas trials with identical posttask ratings were excluded (17% invalid trials). Additionally, we computed accuracy separately for trials in which participants' posttask ratings indicated that they should have selected the first picture as more intense than the third (1gtr3) and vice versa (3gtr1). Based on these two measures, we calculated the latent maintenance construct and the bias to choose either Picture 1 or 3 as higher (see below).

Maintenance Construct

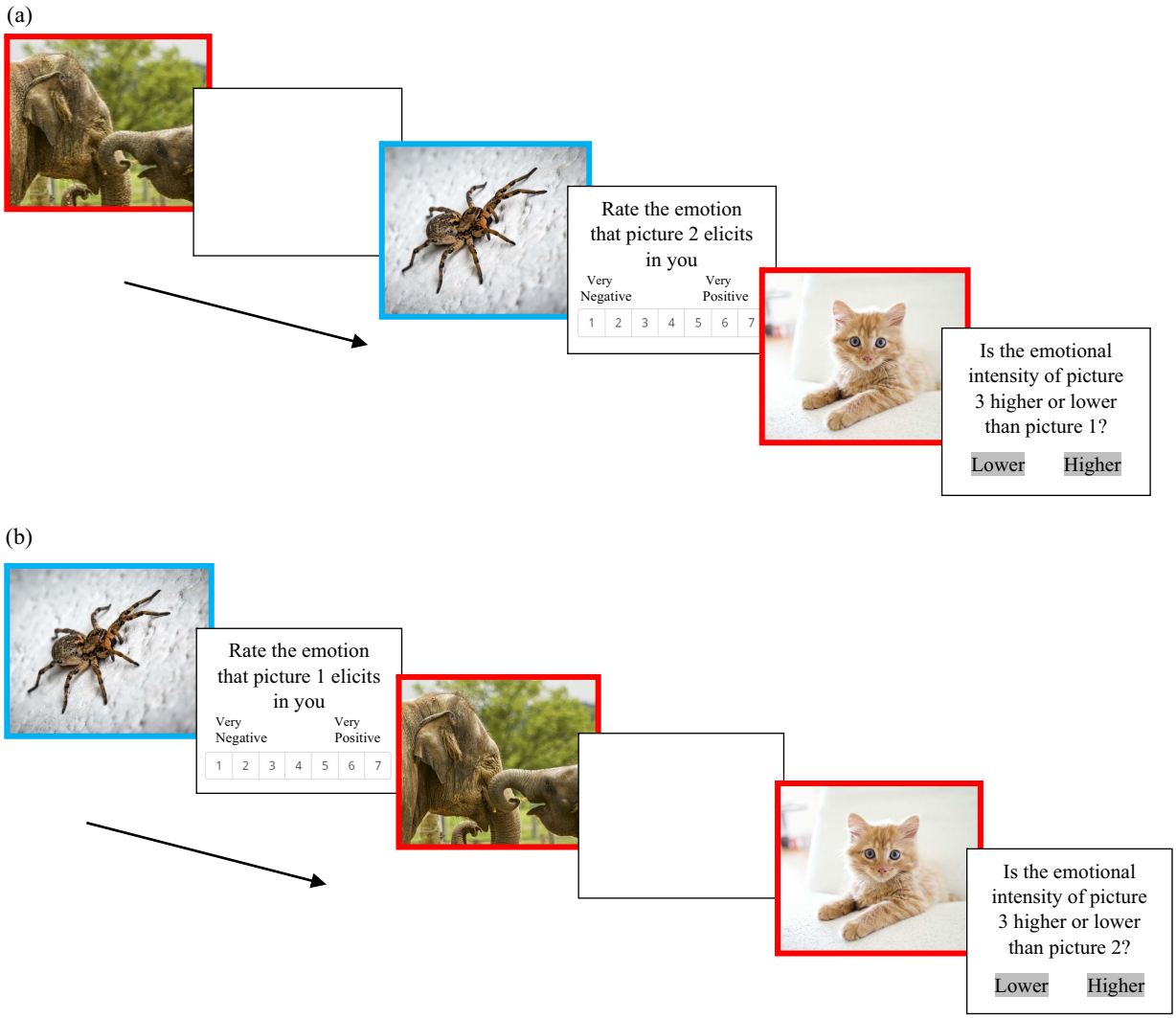
Following our previous work (Kardosh et al., 2024b), we employed the accuracy measure to estimate the latent maintenance construct by utilizing a multinomial processing tree framework (Batchelder & Riefer, 1999). This maintenance construct (Figure 2) offers an improved measure of AWM as it reflects people's accuracy in holding in memory an emotional experience while accounting for the bias to indicate that the first or the last picture has higher intensity. While our previous work (Kardosh et al., 2024b) demonstrated that maintenance closely aligns with accuracy in 1gtr3 trials, we prioritize the use of M in this study as it provides a purer measure of the latent maintenance process, unconfounded by biases inherent in raw accuracy measures. For instance, when the first image is more intense (i.e., 1gtr3 trials), the participant could choose the first picture as more intense due to both maintenance of its emotion (M) and/or a general bias toward choosing the first picture ($B1$). As in Kardosh et al. (2024b), we constructed an AWM model in which we estimated the latent states that represent the successful maintenance (M) of the emotions for 1gtr3 and 3gtr1 conditions. Unsuccessful maintenance ($1 - M$) allowed us to estimate latent states that represent a bias toward choosing the first image as more intense ($B1$) or a bias toward choosing the third image as more intense ($1 - B1$), which allowed us to estimate M. In interpreting M and $B1$, M ranges from -1 to 1, with higher values indicating stronger maintenance, and $B1$ ranges from 0 to 1, reflecting bias toward choosing the first image. Negative M values, while rare, indicate difficulty in maintaining the correct emotional intensity but are not treated as outliers, as they provide valuable insights into variability in emotion maintenance. These participants' data were retained to ensure a comprehensive analysis, and both raw accuracy and M scores are provided in the Supplemental Materials for transparency.

From this model, we deduced two Equations (1, 2) for accuracy in 1gtr3 and 3gtr1 trials to extract successful maintenance (M) of

[3] A one-way ANOVA compared the valence of the three picture types (positive, negative, neutral) and revealed a statistically significant effect, $F(2, 75) = 291.76$, $p < .001$. Tukey's Honest Significant Difference Test for multiple comparisons found that the mean valence was significantly different between negative and neutral pictures ($p < .001$, 95% CI [−2.51, −1.67]), between positive and neutral pictures ($p < .001$, 95% CI [1.70, 2.53]), and between positive and negative pictures ($p < .001$, 95% CI [3.79, 4.63]).

[4] An ANOVA compared the arousal of the three picture types (positive, negative, neutral) and revealed a statistically significant effect, $F(2, 75) = 71.09$, $p < .001$. Tukey's Honest Significant Difference Test for multiple comparisons found that the mean arousal was significantly different between negative and neutral pictures ($p < .001$, 95% CI [1.79, 2.78]) and between positive and neutral pictures ($p < .001$, 95% CI [1.44, 2.43]). There was no statistically significant difference in mean arousal between positive and negative pictures ($p = .222$).

Figure 1
Sample Trials of AWM Task



Note. Panel a: A sample trial of Study 1 and the intratrial condition of Study 2, presenting a positive target emotion (Pictures 1 and 3) and a negative incidental emotion (Picture 2). Panel b: A sample trial of pretrial condition (Study 2) presenting a positive target emotion (Pictures 2 and 3) and a negative incidental emotion (Picture 1). The images are example images retrieved from Pixabay, to protect IAPS copyright. AWM = affective working memory; IAPS = International Affective Picture System. See the online article for the color version of this figure.

emotions in both the 1gtr3 and 3gtr1 trials. By examining cases of unsuccessful maintenance ($1 - M$), our model identified the bias toward selecting the first image as more intense ($B1$) or the bias toward choosing the last image as more intense ($1 - B1$). See (1–4) for the calculations:

$$\text{accuracy in 1gtr3} = M + (1 - M) \times B1. \tag{1}$$

$$\begin{aligned}\text{accuracy in 3gtr1} &= M + (1 - M) \times (1 - B1) \text{ or} \\ &= 1 - (1 - M) \times B1.\end{aligned} \tag{2}$$

We can deduct $B1$ from accuracy in 3gtr1

$$B1 = \frac{1 - \text{accuracy in 3gtr1}}{1 - M}. \tag{3}$$

Then substitute $B1$ in Equation 1 to calculate M

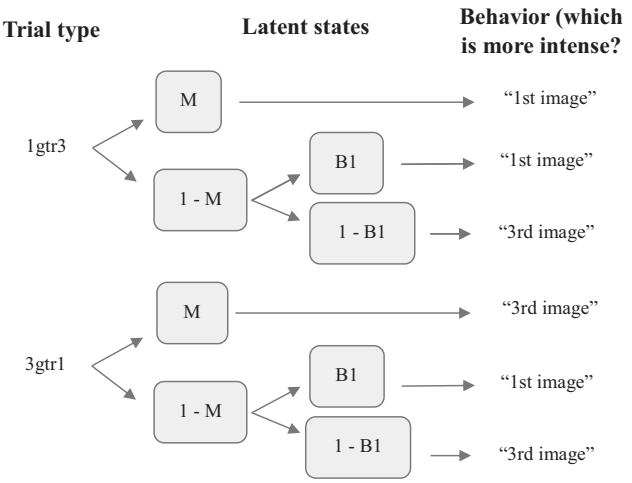
$$M = \text{accuracy in 1gtr3} - (1 - \text{accuracy in 3gtr1}). \tag{4}$$

Procedure

Participants registered for the online study via the DePaul University recruiting system (SONA systems). After signing the consent form, participants completed the AWM task and a 2-min distraction task, in order to mitigate the memory effects on posttask ratings. In the distraction task, they were presented with four words and were asked to use the letters of each word to create new words. Next, they completed the posttask ratings, and lastly, they were asked to complete an online demographics questionnaire (and an

Figure 2

Multinomial Processing Tree for Affective Working Memory



Note. M = the latent state of successful "maintenance"; $B1$ = bias toward picking the first image as more intense; $1 - B1$ = bias toward picking the third image as more intense. Reprinted from "Simultaneous maintenance of emotions in affective working memory," by N. Kardosh, C. Waugh, J. Mikels, and N. Mor, 2024b, *Cognition and Emotion*, *38*(4), 624–634 (https://doi.org/10.1080/02699931.2024.2310160). CC-BY-NC-ND.

additional questionnaire that is not reported in this study). Lastly, they were presented with a debriefing page and were asked to answer some questions (e.g., clarity of the instructions and technical problems). The experimental session took approximately 45 min to complete.

Results

Testing Task Performance

Overall accuracy ($M = 0.74$, $SD = 0.10$) revealed a significant difference from chance level of 0.5, $t(79) = 22.34$, $p < .001$, $d = 2.4$, indicating that the participants successfully maintained their emotional states (instead of randomly choosing Picture 1 or 3; Waugh et al., 2019). Subsequently, we examined participants' bias to select Picture 1 ($B1$), which was significantly smaller than the chance level of 0.5, $M = 0.42$, $SD = 0.15$, $t(79) = -4.47$, $p < .001$, $d = -0.53$, indicative of a bias to choose Picture 3 instead. Therefore, the accuracy measure cannot solely represent the maintenance of AWM, and M was used to test predictions regarding the maintenance process.

Testing of Main Predictions

We predicted (a) a congruency effect in which congruent incidental emotions would facilitate AWM. (b) The congruency effect would be more pronounced in maintenance of negative compared to positive emotions. (c) In maintenance of positive emotions, exposure to negative contextual image (eliciting negative incidental emotions) would result in lower maintenance than exposure to neutral contextual image. Conversely, we did not predict a direction of the effect of positive incidental emotions on maintenance of negative emotions.

To test these predictions, M was submitted to a repeated-measures ANOVA with target (negative, positive) and contextual image (negative, neutral, positive) as within-subject predictors. The main effects of the target emotion, $F(1, 79) = 3.86$, $p = .053$, and of the contextual image, $F(2, 78) = 2.80$, $p = .067$, were nonsignificant. The analysis revealed a significant interaction, $F(2, 78) = 10.99$, $p < .001$, $\eta^2 = .22$, between target emotion and contextual image (Figure 3). In order to further examine the significant interaction, simple effects analysis was conducted with Bonferroni adjustment for multiple comparisons. For a negative target emotion, the analysis revealed a main effect of contextual image, $F(2, 78) = 12.57$, $p < .001$, $\eta^2 = .24$. Maintenance for negative target emotions when viewing negative, $M = .60$, $SE = .04$; $t(79) = 5.0$, $p < .001$, 95% CI [0.10, 0.28],[5] and positive contextual images, $M = .53$, $SE = .04$; $t(79) = 2.51$, $p = .04$, 95% CI [0.002, 0.24], was higher than when viewing neutral contextual images ($M = .41$, $SE = .04$). Differences between negative and positive contextual images were nonsignificant, $t(79) = 1.60$, $p = .33$, 95% CI [−0.03, 0.16]. For a positive target emotion, the analysis did not reveal a significant effect for contextual image, $F(2, 78) = 1.68$, $p = .19$. See Supplemental Material for means, standard deviations, and pairwise comparisons.

Discussion

These results partially support our predictions, showing that experiencing negative or positive incidental emotions during maintenance increased maintenance of negative (but not positive) target emotions. Importantly, our findings suggest that the three parameters we tested, that primarily focused on the effects of incidental emotions, might not fully explain interactions between target and incidental emotions. Positive and negative incidental emotions increased the maintenance of negative target emotions similarly, but neither had an effect on the maintenance of positive target emotions. These findings may point to the need to focus on the maintained emotion itself more than on features of the incidental emotion. The unexpected finding regarding the null effect on positive emotions prompted us to create a replication condition in Study 2. Moreover, in order to examine whether the timing of the incidental emotion affects AWM differently, we included timing as between-subjects variable and created a condition in which the contextual image that elicits the incidental emotions appears prior to the AWM maintenance trial.

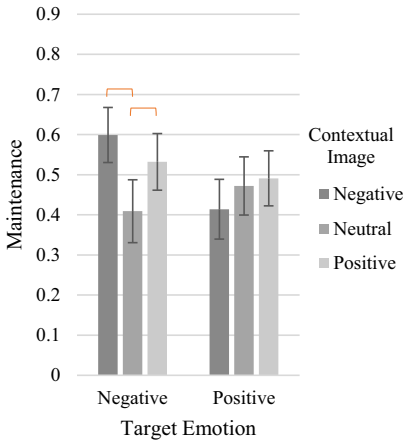
Study 2

In Study 2, we compared two conditions, one in which the contextual image was presented during the maintenance trial ("intratrial condition"—replication of Study 1) and another in which the contextual image was presented prior to the maintenance trial ("pretrial condition"). We modified our predictions based on the results of Study 1. Therefore, we predicted that (a) experiencing negative incidental emotions would facilitate AWM of negative emotions and (b) experiencing positive incidental emotions would result in higher maintenance of negative emotions compared to exposure to neutral contextual image. Because maintenance of positive emotions was not affected by incidental emotions in Study 1, we did not expect to find effects of incidental emotions on positive AWM.

[5] CI refers to 95% confidence intervals.

Figure 3

Maintenance of Negative and Positive Target Emotions by Contextual Image



Note. Error bars represent 95% confidence intervals. Dark bars represent a negative contextual image; light bars represent positive contextual image. See the online article for the color version of this figure.

Moreover, we did not have an a priori prediction regarding the effects of condition (timing).

Method

Participants

A total of 101 participants (51 identified as women, 49 men, one other) were recruited via the Prolific Academic platform (https://www.prolific.co) in return for payment. The study was conducted online. Participants were randomly assigned to one of two conditions (intratrial or pretrial). All participants were native English speakers from the United States or the United Kingdom. To be eligible, participants had to be between 18 and 40 years of age, with correct or corrected vision and a minimum of 95% approval rate (the percent of previous submissions that were approved), as is standard practice for online data collection in the social sciences (Chandler et al., 2019). We aimed for at least a sample size of 72 to achieve power = .90 to detect a small effect ($f = 0.14$) in a mixed ANOVA (G*Power; Faul et al., 2007). To replicate the results of Study 1, we did not base our power analysis on its results. Instead, as in Study 1, we determined the sample size using the data from Waugh et al. (2019). We recruited additional participants to compensate for anticipated higher attrition due to the online nature of the study and to allow for the removal of data from participants with a high number of invalid trials. Data from four participants were removed due to a high number of invalid trials (based on the IQR method presented in Study 1). Therefore, the final number of participants was 97 (44 in intratrial condition and 53 in pretrial condition). Participants' mean age was 29.96 years ($SD = 6.42$). See Table 1 for additional demographic information. The data were collected in 2022.

Affective Working Memory Task

We used the same task and measures used in Study 1 but extended the design to include a between-subjects condition: a 2 (timing condition) × 2 (target emotion) × 3 (incidental emotion) design. Whereas in the intratrial condition (and in Study 1), the contextual image appeared between the AWM trial pictures, in the pretrial condition, the contextual image appeared prior to the AWM trial. In other words, participants in the pretrial condition first rated the valence of the incidental emotion (Picture 1) using a scale ranging from (1) *very negative* to (7) *very positive* and then performed the AWM trial (Figure 1b). As in Study 1, participants had 3 s to rate the contextual image (2% missing responses).

Procedure

Participants registered for the online study via the Prolific platform. The procedure for Study 2 was identical to that of Study 1, including all tasks, instructions, and timing.

Results

Analytic Plan

Although we used the same picture set across timing conditions, participants' experience of the images may differ across timing conditions, making it difficult to attribute effects to order of the picture presentation. To overcome this obstacle, we examined whether ratings of the contextual images differed across timing conditions. Then, we examined task performance as in Study 1, and finally, we examined whether maintenance differed across timing conditions. Because we were interested in replicating the effects demonstrated in Study 1, regardless of the main effect of timing condition, we further examined the effects of target emotion and contextual image for each timing condition separately.

The Effect of Timing Condition on Contextual Image Rating (Manipulation Check)

We conducted a manipulation check to examine whether the ratings of the contextual images differed between the pretrial and intratrial conditions, to ensure that the incidental emotion had the same influence in the two conditions. Therefore, valence ratings of the contextual image were submitted to a mixed-measures ANOVA with timing condition (pretrial, intratrial) as a between-subjects predictor and target emotion (negative, positive) and contextual image (negative, neutral, positive) as within-subject predictors. The main effect of timing condition, $F(1, 95) = 1.23$, $p = .27$, the interactions between timing condition and target emotion, $F(1, 95) = 0.004$, $p = .95$, and between timing condition and contextual image, $F(2, 94) = 0.94$, $p = .39$, and the three-way interaction, $F(2, 94) = 0.45$, $p = .64$, were all nonsignificant. Thus, the contextual images had similar effects on emotional experiences in the two timing conditions.

Testing Task Performance

Overall accuracy rates ($M = 0.75$, $SD = 0.10$) revealed a significant difference from chance level of 0.5, $t(96) = 22.77$, $p < .001$, $d = 2.23$, indicating that the participants performed the task as required. Subsequently, we examined participants' bias to select Picture 1 ($B1$), which was significantly lower than the chance level of 0.5, $M = 0.45$, $SD = 0.17$; $t(96) = -2.70$ $p = .008$, $d = -0.29$, indicative of a bias to choose Picture 3. Therefore, as in Study 1, the accuracy measure cannot solely represent the maintenance of AWM, and M was used to test predictions regarding the maintenance process.

The Effects of Condition on Maintenance

M was submitted to a mixed-measures ANOVA with condition (pretrial, intratrial) as a between-subjects predictor and target (negative, positive) and contextual image (negative, neutral, positive) as within-subject predictors (Figure 4a). The analysis revealed a significant effect of contextual image, $F(2, 94) = 10.88$, $p < .001$, $\eta^2 = .19$, and an interaction between target emotion and contextual image, $F(2, 94) = 7.81$, $p = .001$, $\eta^2 = .14$. The main effect of target emotion, $F(1, 95) = 0.33$, $p = .57$, and timing condition, $F(1, 95) = 0.30$, $p = .59$, and the interactions of target emotion and timing condition, $F(1, 95) = 0.70$, $p = .40$, and of contextual image and timing condition, $F(2, 94) = 1.39$, $p = .26$, and the three-way interaction, $F(2, 94) = 0.04$, $p = .96$, were all nonsignificant. The null effects of timing condition indicated that maintenance did not differ across timing conditions. This suggests that the timing of experiencing an incidental emotion—before or during the emotion maintenance process—does not significantly alter its impact on AWM.

To explore the interaction between target emotion and contextual image, we examined the simple effects of the contextual image for each target emotion separately, with Bonferroni adjustment for multiple comparisons. For negative targets, the analysis was significant, $F(2, 95) = 16.62$, $p < .001$, $\eta^2 = .26$. Maintenance for negative target emotions when viewing a negative contextual image ($M = .60$, $SE = .03$) was higher than when viewing positive, $M = .50$, $SE = .03$; $t(96) = 2.85$, $p = .02$, 95% CI [0.02, 0.20], or neutral contextual images, $M = .39$, $SE = .04$; $t(96) = 5.76$, $p < .001$, 95% CI [0.12, 0.31]. Similarly, maintenance for negative target emotions when viewing positive contextual images was higher than maintenance in trials with neutral contextual images, $t(96) = 3.15$, $p = .006$, 95% CI [0.02, 0.19]. In contrast, the analysis of positive targets did not reveal a significant effect for incidental emotion, $F(2, 95) = 0.22$, $p = .80$. See Supplemental Material for detailed information.

In sum, when participants were exposed to negative contextual images, they tended to maintain negative target emotions to a greater extent than when they were exposed to positive or neutral contextual images. Furthermore, maintenance of negative emotions was better when presented with a positive contextual image as compared to neutral contextual image. This pattern was consistent regardless of when the contextual image was presented. Because a main aim of Study 2 was to replicate the effects of Study 1, we conducted separate analyses for the different timing conditions, even though the effect of timing condition was not significant. Nonetheless, we interpret the following results with caution and focus on the replicability of Study 1.

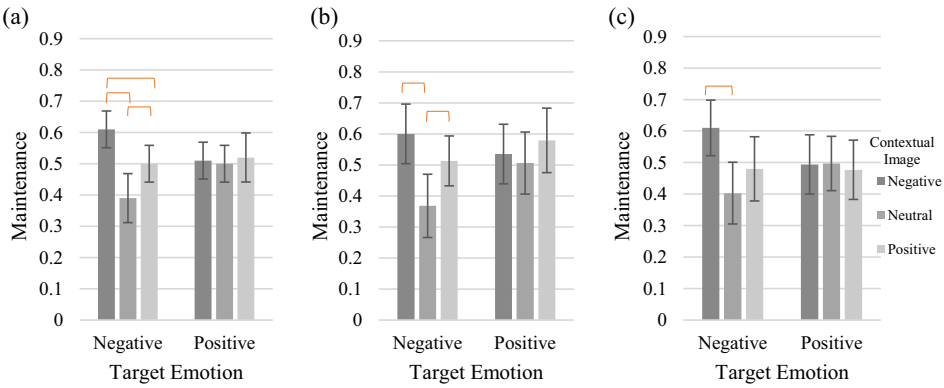
Intratrial Condition: Replication of Study 1

M was submitted to a repeated-measures ANOVA with target emotion (negative, positive) and contextual image (negative, neutral, positive) as within-subject predictors (Figure 4b). The main effect of target emotion was not significant, $F(1, 43) = 1.09$, $p = .301$, but the main effect for contextual image was significant, $F(2, 42) = 5.70$, $p = .006$, $\eta^2 = .21$, and it was qualified by a significant interaction between target emotion and contextual image, $F(2, 42) = 3.88$, $p = .028$, $\eta^2 = .16$.

To explore the interaction between target and contextual image, we examined the simple effects of the contextual image for each target emotion separately, with Bonferroni adjustment for multiple comparisons. For negative targets, the analysis was significant, $F(2, 42) = 7.29$, $p = .002$, $\eta^2 = .26$. Maintenance for negative target emotions when viewing negative, $M = .60$, $SE = .05$; $t(43) = 3.76$, $p = .002$, 95% CI [0.08, 0.39], and positive contextual images, $M = .51$, $SE = .05$; $t(43) = 2.96$, $p = .02$, 95% CI [0.02, 0.27], was better than maintenance when viewing neutral contextual images ($M = .37$, $SE = .52$). Maintenance of negative target emotions when viewing a negative contextual image did not differ from maintenance when viewing a positive contextual image, $t(43) = 1.66$, $p = .30$, 95% CI [−0.04, 0.22]. In contrast, the analysis of positive emotion targets did not reveal a significant effect for contextual image, $F(2, 42) = 0.84$, $p = .44$. See Supplemental Material for detailed information. Replicating Study 1, these results show that only for negative emotion targets, experiencing negative or positive incidental emotions while

Figure 4

Maintenance of Negative and Positive Target Emotions by Contextual Image, Presented Across Conditions, for the Intertrial Condition and for the Pretrial Condition



Note. Error bars represent 95% confidence intervals. Dark bars represent a negative contextual image; light bars represent positive contextual image. Panel a: across conditions; Panel b: intratrial condition; and Panel c: pretrial condition. See the online article for the color version of this figure.

performing the AWM task, improves maintenance compared to exposure to neutral contextual content.

Pretrial Condition

M was submitted to a repeated-measures ANOVA with target emotion (negative, positive) and contextual image (negative, neutral, positive) as within-subject predictors (Figure 4c). The main effect of target emotion was not significant, $F(1, 52) = 0.03$, $p = .85$, but the main effect for contextual image was significant, $F(2, 51) = 6.54$, $p = .003$, $\eta^2 = .20$, and it was qualified by the significant interaction between target and contextual image, $F(2, 51) = 4.44$, $p = .017$, $\eta^2 = .15$.

To explore the interaction between target and contextual image, we examined the simple effects of the contextual image for each target emotion separately, with Bonferroni adjustment for multiple comparisons. For negative targets, the analysis was significant, $F(2, 51) = 9.43$, $p < .001$, $\eta^2 = .27$. Maintenance of negative target emotions when viewing a negative contextual image ($M = .61$, $SE = .04$) was higher than when viewing neutral contextual images, $M = .40$, $SE = .05$; $t(52) = 4.31$, $p < .001$, 95% CI [0.09, 0.32]. There was no difference in the maintenance of negative target emotion when presented with negative versus positive contextual images, $M = .48$, $SE = .05$; $t(52) = 2.26$, $p = .08$, 95% CI [−0.01, 0.27], or when presented with positive versus neutral contextual images, $t(52) = 1.62$, $p = .32$, 95% CI [−0.04, 0.19]. In contrast, the analysis of positive target emotions did not reveal a significant effect for contextual image, $F(2, 51) = 0.13$, $p = .88$. See Supplemental Material for detailed information. These results show that only for negative target emotions, experiencing negative incidental emotions prior to performing the AWM task, improved maintenance compared to experiencing neutral incidental states.

Discussion

Overall, incidental emotions affected the maintenance of negative but not positive emotions. Across conditions, experiencing negative or positive incidental emotions resulted in higher maintenance of negative emotions compared to experiencing neutral incidental states. Furthermore, negative incidental emotions affected AWM more strongly than did positive incidental emotions.

The results show that the timing of experiencing an incidental emotion—before or during the emotion maintenance process—does not significantly alter its impact on AWM. This suggests that the mechanism by which incidental emotions affect AWM may operate independently of the temporal context, potentially pointing to a more generalized emotional processing system within AWM. However, examining the effects of incidental emotions on each of the timing conditions separately revealed some important differences. Replicating Study 1, experiencing positive or negative incidental emotions *during* maintenance of negative emotions improved maintenance compared to exposure to neutral contextual images. Conversely, only the experience of negative incidental emotions (but not positive) *prior* to performing the AWM task improved maintenance of negative emotions.

General Discussion

This research investigated ways in which the experience of incidental emotions, induced by contextual images, influences AWM maintenance of positive and negative emotions. We further explored whether the timing of the incidental emotional experience impacts AWM maintenance.

The results of Study 1, which examined the effect of experiencing incidental emotions *during* the maintenance process, were surprising and only partially supported our predictions. Experiencing negative or positive incidental emotions during maintenance (vs. neutral incidental states) increased maintenance of negative target emotions. However, negative incidental emotions did not increase maintenance more than positive incidental emotions did. Importantly, experiencing incidental emotions did not influence maintenance of positive emotions, regardless of whether the incidental emotion was congruent or incongruent.

The results of Study 2, which compared the effect of experiencing incidental emotions during or prior to the maintenance process, were in line with the results of Study 1. Specifically, experiencing incidental emotions only influenced maintenance of negative emotions. Importantly, there were no significant differences between the conditions, indicating that experiencing incidental emotions prior to or during AWM maintenance influenced AWM in similar manners: Emotional contextual images resulted in better maintenance of negative target emotions (compared to neutral contextual images), particularly when the incidental emotion was negative. The impact of positive contextual images on maintenance of negative emotions varied: It increased maintenance in Study 1 and the intratrial condition of Study 2, but not in the pretrial condition of Study 2. However, when viewed collectively, the trend suggests that negative incidental emotions lead to greater maintenance of negative emotions, followed by positive incidental emotions, and finally neutral contextual images. Given the consistency of this pattern across all studies and conditions, coupled with the lack of significant differences between conditions in Study 2, our discussion will mostly concentrate on the overarching effects rather than individual conditions.

The finding that the experience of negative incidental emotions increases the maintenance of negative emotions may be particularly relevant to understanding the challenges faced by individuals with rumination tendencies. These people persistently focus on the causes and consequences of their distress and find it difficult to escape from a negative mood state (Watkins & Roberts, 2020). Rumination significantly hampers the ability to move past negative emotional states, suggesting a bidirectional interplay between rumination and AWM. Specifically, while rumination naturally engages the WM in a persistent focus on negative emotions (Bruning et al., 2023; Pan et al., 2020), the experience of negative incidental emotions could further maintain negative emotions in AWM. This saturation of AWM with negative content not only exacerbates the individual's tendency to ruminate but may also hinder the processing and resolution of these emotions, thereby reinforcing the cycle of rumination. Therefore, understanding the mechanisms underlying AWM maintenance in rumination is crucial for developing effective interventions aimed at promoting emotional resilience and mental health (e.g., Vardi et al., 2024).

At first glance, the idea that positive incidental emotions would enhance the maintenance of negative emotions may seem counterintuitive. However, Jackson et al. (2012) found that both positive and negative words (as opposed to neutral) presented during WM maintenance boosted maintenance of negative content. A possible explanation for the enhanced maintenance of negative emotions when experienced with positive emotions is the contrast between the positive and negative emotions. Negative emotions, possibly due to

their high salience and arousing nature (Baumeister et al., 2001; Fredrickson, 2001; R. J. Larsen & Prizmic, 2008; Rozin & Royzman, 2001), tend to capture attention regardless of when they appear, potentially leading to a stronger and more immediate impact on AWM. In contrast, positive incidental emotions might exert their influence more subtly, perhaps through a contrast mechanism, where their effects become more pronounced when directly juxtaposed with ongoing negative emotions. The emotional contrast theory (Geers & Lassiter, 1999; Greif & Waring, 2018; J. T. Larsen & Norris, 2009) posits that the perceived intensity of a current emotional state is influenced by the comparison with the emotional valence of preceding experiences, leading to enhanced or diminished emotional responses based on the contrast between them. When individuals experience a positive incidental emotion and then are asked to maintain a negative emotion (i.e., pretrial), or when individuals are in a state of maintained negative emotion and are asked to experience a positive incidental emotion (i.e., intratrial), the stark contrast between their ongoing negative emotional state and the positive stimuli could inadvertently highlight and intensify the negativity of their emotions. This is because the positive stimuli create a backdrop against which the negative emotions are contrasted. Thus, the negative emotions are experienced as more intense due to the disparity in emotional valence. Although in the pretrial condition positive contextual images did not have a significant effect on maintenance of negative emotions (compared to neutral or negative contextual images), examining Figure 4c shows a trend in this direction. This suggests that the contrast effect might be more impactful when the positive incidental emotions are presented during the maintenance process rather than prior to it. The differences observed between conditions in Study 2, particularly regarding the timing of positive incidental emotions, highlight the need for further investigation. Although this is speculative, it offers a potential avenue for future research to explore the nuanced ways in which different types of incidental emotions interact with AWM and whether the timing of emotional stimuli influences the strength of the contrast effect and its impact on the maintenance of negative emotions.

Contrary to earlier understandings that positive affect primarily serves to buffer against stress and enhance well-being (Folkman & Moskowitz, 2000; R. J. Larsen & Prizmic, 2004; Shiota, 2006; Tugade & Fredrickson, 2004, 2007), our findings suggest that positive emotions can prolong the experience of negative emotions. Moreover, these findings along with Jackson et al. (2012) are in line with the broaden and build theory's (Fredrickson & Branigan, 2005) assertion that positive emotions expand the breadth of attention and the diversity of thought–action sequences. This theory implies that by broadening attention, positive emotions could inadvertently intensify focus on coexisting negative emotions (and perhaps positive emotions too), in order to enhance performance. This presents a challenge to the notion that leveraging positive emotions is an effective way to reduce the duration of negative emotional states. Conversely, it could indicate that experiencing positive emotions helps people endure negative emotions by reducing the negativity of the emotion and by giving them the confidence that they can handle the task of holding in mind negative emotions.

The lack of effect of incidental emotions on AWM of positive emotions may indicate that positive emotions are robust and stable. The stability of positive emotions in AWM, unaffected by incidental emotional stimuli, aligns with previous findings suggesting an inherent resilience in maintaining positive states even under increased emotional demands (Cheng et al., 2023; Diener et al., 2020; Jackson et al., 2012; Kardosh et al., 2024b; Waugh et al., 2019). This resilience is underpinned by the mood-as-information theory (Schwarz, 2012; Schwarz & Clore, 1983), which posits that positive affect, being devoid of perceived threats or danger, discourages efforts to alter one's current state, especially because people are motivated to increase or maintain positive emotions (Gruber et al., 2020; Hemenover & Harbke, 2020).

The current findings paint a complex picture concerning the relative maintenance of positive and negative emotions. First, in the neutral context condition, we replicate our recent work in which we reported that individuals are more adept at maintaining positive emotions compared to negative ones (Kardosh et al., 2024b; Waugh et al., 2019). However, once incidental emotions are involved, a different picture emerges, and the positive advantage is no longer detected. It is possible that the experience of incidental emotions obscured the inherent superiority of maintaining positivity, by elevating the maintenance of negative emotions but not the maintenance of positive emotions. Alternatively, it is possible that neutral contextual images may impair the maintenance of negative emotions. However, this interpretation appears less likely. The data suggest that the maintenance of negative emotions, when paired with positive or negative contextual images, is comparable to or even slightly exceeds the maintenance of positive emotions. This pattern implies that the observed effects are more likely attributable to the enhancement provided by emotionally charged contextual images rather than an impairment caused by neutral images. The lack of emotional salience in neutral images may fail to provide the necessary reinforcement for maintaining negative emotions in AWM, resulting in lower maintenance in these trials. Nonetheless, this interpretation remains speculative, and further empirical work is needed to delineate these effects more clearly.

In our previous investigation (Kardosh et al., 2024b), the participants were exposed to an additional emotion during the maintenance, and they were tasked with simultaneously maintaining the two emotions. This way, they were encouraged to actively engage with the additional emotion, compared to merely experiencing it (as in the current research). We discovered that the simultaneous maintenance of these emotions did not significantly alter their ability to be maintained. In other words, the valence of the additional emotions did not influence AWM of positive and negative emotions. This finding suggests that actively engaging with an incidental emotion (compared to merely experiencing it) can mitigate its impact on AWM maintenance. It also implies a potential route to emotional regulation whereby individuals could use active engagement with emotions to diminish the maintenance of negative emotions. These observations align with theories on emotion regulation strategies, suggesting that emotions can increase cognitive load which may itself serve as a form of emotion regulation (Barley et al., 2021; Li et al., 2020; Plass & Kalyuga, 2019).

We note several limitations of the current research. First, participants were not asked to report the strategy they used to maintain their emotional state throughout the task. Without this insight, we cannot fully discern how participants may have internally managed or altered their focus between the images. This could have impacted the measured intensity of emotional maintenance. Second, the experimental design relied heavily on contextual images to induce emotions. Real-world scenarios might have more complex emotional triggers, which our study did not fully encompass. Future studies might consider using virtual reality technology to create complex emotional contexts in which people can perform the AWM tasks

(Kako et al., 2023). Third, although we counterbalanced the order of trials to offset any carryover effects that could influence the main findings, the potential carryover effects from prior trials to current trial performance warrant consideration and further exploration. Finally, in this research, a large number of analyses were performed. Because analyses were not preregistered, some caution should be exercised when interpreting the results. Nonetheless, the consistency of trends observed across different studies and conditions provides some reassurance regarding the robustness of the findings.

The significance and innovation of this research lie in its exploration of the dynamic nature of AWM and its capacity to maintain emotions while experiencing additional emotions simultaneously. This study pioneers dissecting the mechanisms by which positive and negative emotions interact within AWM, an area that has remained relatively uncharted. By demonstrating that negative emotions can be influenced by the experience of incidental emotions, our research underscores the malleability of negative emotions within AWM processes. This demonstrates that the maintenance of negative emotions can be amplified not only by additional negative experiences but also by positive ones. The findings propose a potential asymmetry in the way emotional valence is processed and maintained in the human mind, providing a novel perspective on emotional processing and regulation.

Constraints on Generality

In both Study 1 and Study 2, limitations regarding generalizability stem from the predominantly White/Caucasian composition of the samples, accounting for 62.5% in Study 1 and 87.62% in Study 2. This ethnic bias may restrict the applicability of the findings to more diverse populations. Additionally, the inclusion of primarily native English speakers from the United States (Studies 1 and 2) and United Kingdom (Study 2) in both studies might limit the transferability of results to individuals with different linguistic and cultural backgrounds. Furthermore, it is important to note that socioeconomic status was not measured as a limitation. This exclusion could impact the generalizability of the findings, as socioeconomic status is known to influence various psychological processes and responses to emotional stimuli. However, the studies showcased diversity in age and in geographical location, encompassing participants from both countries. Moreover, the utilization of visual emotional stimuli rather than verbal ones may enhance the generalizability of the results across different language groups. Despite these strengths, caution is warranted when extrapolating findings beyond the sampled populations, necessitating future research with more representative samples to ensure broader applicability and validity.

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Correction to "The Influence of Pre- and Intratask Emotional Experiences on Affective Working Memory Maintenance" by Kardosh et al. (2025)

In the article "The Influence of Pre- and Intratask Emotional Experiences on Affective Working Memory Maintenance," by Nour Kardosh, Christian E. Waugh, Joseph A. Mikels, and Nilly Mor (*Emotion*, advance online publication, January 16, 2025, https://doi.org/10.1037/emo0001464), there was an error in the Study 1 Method section regarding the duration of the distraction task. Under the Procedure heading in the Study 1 Method section, the sentence "After signing the consent form, participants completed the AWM task and a 2-min distraction task, in order to mitigate the memory effects on posttask ratings" should have said "After signing the consent form, participants completed the AWM task and a 3-min distraction task, in order to mitigate the memory effects on posttask ratings." The findings and conclusions of the article remain unchanged.

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