4-2011

Emotional Regulation and Memory: The Effects of Reappraisal on Source Decisions

Chad Gremillion

Emotional Regulation and Memory: The Effects of Reappraisal on Source Decisions

by

Chad Gremillion

Undergraduate honors thesis under the direction of

Dr. Jason Hicks

Department of Psychology

Submitted to the LSU Honors College in partial fulfillment of
the Upper Division Honors Program.

April, 2011

Louisiana State University
& Agricultural and Mechanical College
Baton Rouge, Louisiana

Emotional Regulation and Memory: The Effects of Reappraisal on Source Decisions

Chad M. Gremillion

Louisiana State University

Abstract

Previous studies have looked at various methods of regulating emotions and their effects on memory. One technique is reappraisal, which involves enhancing or decreasing the personal relevance of a stimulus. In this study, participants used reappraisal to increase or decrease the personal relevance of a picture set with positive, negative, and neutral pictures. Pictures were shown on either the left or right side of the screen. After a filler task, the participant performed a recognition task where they decided if a picture was seen on the left, the right, or if it was not studied. Significant results were only found for unpleasant pictures, which had better recognition memory. The effect sizes for the source memory results suggest that with more power, significant results would be found for the effects of valence and reappraisal on source decisions.

Emotional Regulation and Memory: The Effects of Reappraisal on Source Decisions

Emotions are an everyday occurrence. Whether it is happiness, sadness, anger, or fear, everyone's life is shaped by a constant stream of emotions, whether static or dynamic. One main question about emotion remains unresolved: do they help or do they hurt? Though it seems both can be true, there have been countless studies that favor one side or the other. While emotions are seen in part as a guiding force in our choices, they are also seen in a negative light as impulsive and barbaric responses (Richard & Gross, 2000). This study focuses on the positive and negative effects of emotion on memory.

Some studies have highlighted the positive outcomes of unregulated emotions. In general, emotional events have been shown to be easier to recall (Christianson, Luftus, Hoffman, & Loftus, 1991). Positive emotions are usually considered enjoyable in and of themselves, but it has also been shown that people will purposefully be angry or stern to achieve better bargaining advantages (Van Dijk & Van Kleef, 2008; Tamir & Ford, 2009). Some studies have correlated particularly arousing stimuli with an attentional narrowing effect, where only the main characters and ideas are remembered while the peripheral information is forgotten; it has been suggested that these studies may have used stimuli that were too centered on one shocking experience, and that the use of more broad emotional stimuli show that emotions have a positive effect on memory for both main and peripheral information (Campbell, Heuer, & Reisberg, 2004).

Some studies have highlighted the positive and negative outcomes of controlling one's emotions, or *emotional regulation*. While emotions were originally seen as mostly impulsive reactions, it is more widely accepted now that emotions are, in part, a controllable reaction. Because showing emotions can sometimes be undesirable, whether

for practical or hedonic reasons (Tamir, Chiu, & Gross, 2007), it is common to use emotional regulation to control the physical and mental aspects of emotion (Gross, 1998a). Even in children, the ability to regulate emotions has been shown to correlate with personality resilience and social competence (Spinrad, Eisenberg, Cumberland, Fabes, Valiente, Shepard, Reiser, Losoya, & Guthrie, 2006), though it has also been shown that children must use more effort than adults to regulate their emotions (Scheibe & Blanchard-Fields, 2009). In fact, many studies correlate the inability to regulate emotions with psychopathology (Gross & Munoz, 1995). Various methods of regulation have been studied.

One such method is *reappraisal*. This is the reinterpretation of emotional stimuli in a new light. This can include *enhancing* the situation by making the stimuli more personally emotional, or *decreasing* the situation by making oneself more aloof from the situation. For example, if a picture is presented displaying someone with a hurt leg, the reappraiser can picture the hurt person as someone close to the reappraiser in an enhanced situation, or as a random person who is hurt in a decrease situation. Reappraisal has been shown to have many interesting effects. In one experiment, Dillon and LaBar (2005) tested startle responses of participants when viewing negative, neutral, and positive pictures. Using reappraisal, participants who enhanced the stimuli had an increased startle response, while those who decreased the stimulus had a decreased startle response. Reappraisal has also been shown to increase and decrease emotional experience, emotional expressive-behavior, and autonomic physiology in accordance with reappraisal instructions (Giuliani, McRae, & Gross, 2008).

One interesting proposal on reappraisal by Dillon, Ritchey, Johnson, & LaBar (2007) was whether stimulus-dependent arousal or stimulus-elaboration would have a greater affect on memory, which they called the arousal hypothesis and stimulus-elaboration hypotheses, respectively. In their study, participants were presented with unpleasant and neutral pictures. They were asked to use reappraisal to enhance or decrease the relevance of the stimuli, or to view it passively. Afterwards, they were asked to describe as many of the pictures in detail as they could. If the arousal hypothesis was supported, for unpleasant stimuli the enhance cue lead to better memory for the stimuli, while passive and decrease cues would lead to worse memory for the stimuli. This contrast would show that the emotional regulation technique had an effect on memory by increasing or decreasing the arousal of the unpleasant pictures. If the stimulus-elaboration hypothesis was supported, the enhance and decrease cues would lead to better recall because any reappraisal would allow for more intricate encoding of the stimuli than the control condition. In other words, reappraisal of either type would encourage elaboration of the stimulus, leading to better general recall. They found support for the stimulus-elaboration hypothesis, because the enhance and decrease cues led to better recall for unpleasant pictures.

This study focuses on the effects of emotional regulation, specifically reappraisal, on source memory. Source information is comprised of any of the characteristics of the conditions in which something was encoded including the medium and modality at encoding, as well as the place, time, or social context at encoding (Johnson, Hashtroudi, & Lindsay, 1993). In typical source monitoring studies, people are asked to encode information from two or more sources and later remember which source was associated

with learned information. For example, people might be asked to learn a list of words spoken by male and female voices (e.g., Marsh & Hicks, 1998). On a later test, those words would be shown visually and people would be asked to remember whether the word was spoken by the male or female voice, or whether the word was not studied at all. Source memory is often tested to demonstrate how well people recall aspects of the context in which information was encoded.

A growing literature exists on the effects of emotion and arousal on memory for source (e.g., D'Argembeau & Van der Linden, 2004; Doerksen & Shimamura, 2001; Kensinger & Corkin, 2003; Mather & Nesmith, 2008). In most cases, arousing pictures or words (e.g., rape) are associated with better source memory when compared to neutral stimuli (e.g., bench). Most of these studies tend to request source memory for information that is unrelated to the gist or central aspects of the stimulus, such as spatial location on a computer screen or the color in which a stimulus was printed (e.g., Doerksen & Shimamura, 2001; Kensigner & Corkin, 2003). Thus, even information that has little to do with the central theme or gist of a stimulus is remembered better when that stimulus evokes arousal (see Cook, Hicks, & Marsh, 2007 for a notable exception).

In this study, reappraisal was examined further to see if it generates stimulus elaboration, as shown in the Dillon et al. (2007) study. Elaboration in the form of enhance or decrease cues may naturally focus on the central aspects of the stimuli, and therefore might come at a cost to memory for peripheral source information. Research examining selective focus on stimuli in source tasks sometimes shows that the manner of elaboration may either increase or decrease source memory. For example, Johnson, Nolde, and De Leonardis (1996) showed that focusing on one's own emotional reaction to learned

sentences actually decreased source memory for the spoken source of the sentences. Whereas asking people to focus on a speculated motivation from the speaker's voice increased source memory. Another example can be found in a study by Marsh, Hicks, and Cook (2004). When people were told before the learning phase which source dimension would be tested (e.g., picture left or right side of a binder), source memory for an independent dimension (e.g., color or black-and-white picture) was not affected. Thus, the type of elaboration may have different consequences for source memory, leading to better source memory, worse source memory, or no difference. Alternatively, such elaboration may produce better memory for all aspects of the stimuli, both the central aspects and the contextual aspects. Recent work (Glanzer, Hilford, & Kim, 2004) showed that when people more deeply encode information by making elaborative judgments during the learning phase, source memory (e.g., memory for voice) improves in addition to generally better memory for the simple occurrence of the stimuli.

In this experiment, a set of pictures was shown on the left and right side of the screen. The pictures were evenly distributed among three sets, pleasant, neutral, and unpleasant. Each participant was given clear instructions to enhance or decrease the pictures' emotional content using reappraisal, or to just focus on learning the pictures for an eventual test of memory. At test, a new set of pictures as well as the old set of pictures were presented. The participant was asked if the picture was seen on the left, the right, or if it is new. It was hypothesized that the pleasant and unpleasant pictures would have better recognition (old/new) than the neutral pictures overall because of their arousing nature. Memory for source (left/right) should be better for arousing pictures as compared to neutral pictures, as found in work by Mather and Nesmith (2008). Of most interest is

the effect of the enhance and decrease cues relative to the control encoding condition. If elaboration improves memory for occurrence but not memory for source, then people's ability to recognize pictures as 'old' or 'new' should be greater as compared to the control encoding condition, but memory for source should be either unaffected or perhaps be worse. However, if elaboration improves the learning of all aspects of the stimuli, then the enhance and decrease conditions should improve both recognition of occurrence and memory for source. These processes should affect neutral and arousing stimuli alike.

Methods

Participants

Seventy participants were in this study. Participants were comprised of undergraduate psychology majors who received partial course credit for completing the study. There were 24 participants in Control group, 24 in the Enhance reappraisal group, and 22 in the Decrease reappraisal group.

Stimuli

Ninety pictures were chosen from the International Affective Picture Set (Lang, Bradley, & Cuthbert, 2001). These pictures are rated on two, 9-point scales; they are valence (1=unpleasant, 9=pleasant) and arousal (1=calming, 9=exciting). Thirty of the pictures used in this study were neutral with regard to both valence and arousal, another 30 were pleasant and arousing, and still another 30 were negative and arousing. The means for valence and arousal are 4.84 and 2.41 for the neutral group, 6.98 and 6.49 for the pleasant group, and 2.04 and 6.56 for the unpleasant group.

Procedure

Each participant was seated at a computer and given a consent form. Depending whether they were assigned to the Enhance, Control, or Decrease condition, the instructions for their emotional regulation technique were shown on the screen. The Control condition instructions were as follows:

> "In this experiment, you will see a set of pictures. You should watch with your full attention, because your memory for the pictures will be tested later."

The Enhance condition instructions were as follows:

> "You are about to see a set of pictures. Please watch with your full attention because your memory for the pictures will be tested later. While viewing these pictures, try to increase the personal relevance of the pictures by picturing yourself in the scene alongside the picture's main object, and think about the emotions that go along with that."

The Decrease condition instructions were as follows:

> "You are about to see a set of pictures. Please watch with your full attention because your memory for the pictures will be tested later. While viewing these pictures, try to decrease the personal relevance of the pictures by increasing your subjective distance from the main object. Pretend that if you were present in the situation, you would be watching strangers that have no effect on your life."

In the Enhance and Decrease conditions, two examples were given of the emotional regulation technique. They were an image of a man skiing and an image of a mutilated man. For the enhance condition, the examples read as follows:

> "For a picture of a man skiing, you could picture that you are the skier going down the slope, and all the emotions that go along with that."

> ""For a picture of a mutilated person, you could picture that the person is someone close to you, and you feel emotionally invested in the situation."

For the decrease condition, the examples read as follows:

> "For a picture of a man skiing, you could picture that the man skiing is not someone you know, but just a random person who has no effect on your life."
>
> "For a picture of a mutilated person, you could picture the person as far away from yourself, or that the situation has no effect on your life."

For all conditions, a practice trial of 4 pictures was given before the actual experiment began. All of the pictures were shown for 5 seconds. Between every picture, the participant was reminded of their emotional regulation technique for 2 seconds. The reminders were as follows: "Remember to watch with your full attention", "Remember to increase the emotional relevance of the picture", and "Remember to decrease the personal relevance of the picture." The actual study phase followed the same procedure. In a random order, 60 pictures were shown on the screen. Twenty of these pictures were positive, 20 were negative, and 20 were neutral. In a random order, half of the pictures were shown on the left side of the screen, and half were shown on the right side of the screen.

When the participant completed the encoding task, they were given a filler task for 3 minutes. The task was to name as many of the 50 states in the USA as possible. Afterwards, the participant was given a source recognition test where they were shown pictures individually in the middle of the screen from the previous 60 pictures plus the 30 pictures that were not shown. They were instructed to choose whether the picture was seen on the left side of the screen, the right, or if the picture was new (not seen during

encoding). All 90 pictures (60 old, 30 new) were shown in this fashion. The participant was then debriefed and thanked

To gain further insight into the participants use of the emotional regulation technique, a short evaluation sheet was given to the participants in the Enhance and Decrease conditions at 2 points, right after the 4 picture practice trial and after the main source recognition task. The participant was asked to rate "How well do you think you changed the emotional content of the pictures?" on a 7-point Likert scale, as well to "Please describe how you changed the emotional content of any 2 of the pictures." The results of this evaluation are reviewed in the discussion section.

Results

The memory data were analyzed in two steps. The first step was to calculate the hit and false alarm rates and then collapse them into a combined corrected recognition score. Hit rates refer to the proportion of studied items deemed old (i.e., claimed to be shown on either the left or right side of the screen). False alarm rates refer to the proportion of new test items deemed old. To the extent that false alarm rate can be considered a proxy for guessing tendencies, subtracting those from the hit rate yields a measure of corrected recognition (Snodgrass & Corwin, 1988). An ANOVA was conducted on the corrected recognition score to see if overall recognition was significantly different among the different reappraisal conditions and for different types of items (positive, negative, and neutral). The second step was to calculate measures of source memory. One of these is the conditional source identification measure (CSIM) of whether pictures shown on the left and right side of the screen were correctly attributed.

Separate CSIM scores are created for source. For example, pictures shown on the left and claimed "left" are divided by pictures shown on the left and claimed to be either "left" or "right" (i.e., the hit rate for items shown on the left). These scores were also averaged together to create an ACSIM score (i.e., Average CSIM) to represent overall source memory for each valence type and for each condition. An ANOVA was conducted on the ACSIM scores to examine source memory.

The first analysis was done by comparing recognition scores (whether people could discriminate old from new items). This analysis leaves out the source memory aspect. Table 1 displays the hit rate (when old pictures were called old) and the false alarm rate (when new pictures were called old) for each valence and each condition. Table 2 displays the resulting corrected recognition score to account for guessing bias. For the corrected recognition rates, there was a significant main effect of valence, $F(2, 124) = 11.93$, $p < .05$, partial eta-squared = .161. There was no main effect of condition, $F(2, 62) = .194$, $p > .05$, partial eta-squared = .006, and no interaction between valence and condition, $F(4, 124) = .421$, $p > .05$, partial eta-squared = .013. Three paired t-tests were done post hoc to further analyze the significant effect of valence. There was a significant difference between the negative and positive scores, $t(67) = 4.21$, $p<.05$ and between the negative and neutral scores, $t(67) = 3.25$, $p<.05$. There was no significant difference between the neutral and positive scores, $t(67) = 1.41$, $p>.05$.

Tables 3 and Table 4 show the data for source CSIM and ACSIM scores, respectively. A 3 (valence) x 3 (condition) was conducted to examine source ACSIM scores. No significant effects were found; for valence, $F(2, 126) = 1.72$, $p > .05$, partial eta-squared = .027, for condition, $F(2, 63) = .384$, $p > .05$, partial eta-squared = .012; for

the interaction, $F(4, 126) = .694$, $p > .05$, partial eta-squared = .013. The effect size for the valence factor suggests that a more powerful study may have revealed a decrease in source memory for emotional items as compared to neutral items. There was also a nominal trend for the elaboration conditions to have slightly worse source memory as compared to the encode condition.

Discussion

As hypothesized, valence did have a significant effect on recognition memory. Unpleasant stimuli were recognized more often than neutral items, though the pleasant pictures showed no difference from neutral pictures. Contrary to the hypotheses, no main effect of reappraisal was found for recognition. No significant effects were found for valence or condition for source memory, though the effect sizes suggested some interesting implications of valence and reappraisal on source memory. More arousing stimuli (pleasant and unpleasant) seemed to have worse source memory than neutral stimuli. The Enhance and Decrease conditions seemed to have worse source memory than the control condition. These two trends might suggest that the arousing nature of the images and the reappraisal techniques took away from source memory by either focusing attention too narrowly or taking up too much of the participant's cognitive resources.

This study differed from the Dillon et al. (2007) study described in the introduction in a few key ways. A group of pleasant pictures was added to the unpleasant and neutral groups to see what effects reappraisal had on arousing but high valence (happy) pictures. Pleasant pictures were not remembered as well as unpleasant pictures, which suggests that maybe they were not as memorable, though the IAPS arousal ratings of the pleasant and unpleasant group of pictures were very similar, which would suggest

that they should be remembered equally well. Recognition memory was used in this study instead of recall memory, which may suggest why significant results of reappraisal were not found on overall recognition memory. This study is different from the Dillon et al. (2007) study in its use of source memory, and the effect sizes suggest that with more participants, valence and reappraisal could have significant effects on source memory.

The evaluation sheet given during the study confirmed that the emotional regulation technique was successful. For the Enhance and Decrease conditions, the average for both questionnaires was 5. In the descriptions of how the participants changed the emotional content of the pictures, participants cited things such as picturing friends being hurt in the unpleasant pictures or picturing a violent scene as just a video from class to increase subjective distance. Many of the participants noted that the unpleasant pictures were particularly hard to enhance or decrease because they made the participant nauseated or disgusted. A handful of subjects seemed to not understand the emotional regulation technique or the question completely, and in their descriptions they only described the pictures and not how they changed them. In future studies, the emotional regulation techniques could be clarified better, and the participant could be engaged more to make sure they understand the reappraisal technique.

The findings of Mather and Nesmith (2008) are of particular interest to the outcome of this study. They found better source memory for arousing pictures in multiple experiments, including when all the arousing pictures were blocked together or not, whether the arousing pictures were presented with non-arousing pictures or not, and if recognition for the arousing pictures was good or not. They found positive pictures to be significant. They paired the negative and positive pictures individually with neutral

pictures, and stated that the positive pictures were only significant because of this specific pairing. In all the experiments, the pictures were shown in multiple locations that could be chosen during the test phase, while the present study only presented the picture in the middle of the screen. This placement may confound some of the aspects of recognizing the source of the picture. Mather and Nesmith (2008) also mention that participants in Experiment 4 who expected to be tested on source memory did not have a significant effect of arousal on source memory. These findings enlighten some of the factors that could be controlled and tested in future studies.

This study may have been limited in a few ways. As stated already, the reappraisal questionnaire suggests some participants may not have completely understood the reappraisal instructions. Additionally, the large amount of pictures shown in succession may have been too much for the participant to reappraise each picture individually. This quick succession of emotional content may also not be generalizable to the real world. Participants may have guessed randomly in the test phase, though only one participant in the data set had an unusually high reaction time and was excluded.

Future studies could improve on this design by including more pictures to lower the recognition rates and find more significant differences, as well increasing time between the study phase and the test phase. As already stated, more participants would probably increase the significance of the effects of reappraisal. Reaction times could be more closely examined to see if differences between valences and reappraisal conditions could be found. More information could be gathered from the participants on how tasking the study phase was, and more information could be gathered on much the participant had to guess in the test phase. The participants could be asked for valence and

arousal ratings to ensure that the pictures are arousing enough to find significant results; this aspect is crucial because some participants may be desensitized or hypersensitive to the emotional content, creating variability in the data. Other types of source memory could be tested such as background colors, as well as other types of memory. Many new directions could be taken to shed light on the complex areas of source memory and emotional regulation.

References

Campbell, H. V., Heuer, F., & Reisberg, D. (2004). Memory for thematically arousing events. *Memory & Cognition*, *32(7),* 1149-1159.

Christianson, S. Å., Loftus, E. F., Hoffman, H., & Loftus, G. R. (1991). Eye fixations and memory for emotional events. *Journal of Experimental Psychology: Learning, Memory, & Cognition, 17,* 693-701.

D'Argembeau, A., & Van der Linden, M. (2004). Influence of affective meaning on memory for contextual information. *Emotion, 4*, 173-188.

Dillon, D. G., & LaBar, K. S. (2005). Startle modulation during conscious emotion regulation is arousal-dependent. *Behavioral Neuroscience, 119,* 1118-1124.

Dillon, D. G., Ritchey, M., Johnson, B. D., & LaBar, K. S. (2007). Dissociable effects of conscious emotion regulation strategies on explicit and implicit memory. *Emotion*, *7*, 354–365.

Doerksen, S., & Shimamura, A. P. (2001). Source memory enhancement for emotional words. *Emotion, 1*, 5–11.

Giuliani, N. R., McRae, K., & Gross, J. J. (2008). The Up- and down-regulation of amusement: Experiential, behavioral, and autonomic consequences. *Emotion, 8,* 714-719.

Glanzer, M., Hilford, A., & Kim, K. (2004). Six regularities of source recognition. *Journal of Experimental Psychology: Learning, Memory, & Cognition, 30*, 1176-1195.

Gross, J. J. (1998a). Antecedent- and response-focused emotion regulation: Divergent consequences for experience, expression, and physiology. *Journal of Personality and Social Psychology, 74,* 224-237.

Gross, J. J., & Munoz, R. F. (1995). Emotion regulation and mental health. *Clinical Psychology: Science and Practice, 2,* 151-164.

Johnson, M. K., Hashtroudi, S., & Lindsay, D. S. (1993). Source monitoring. *Psychological Bulletin, 114,* 3-28.

Johnson, M. K., Nolde, S. F., & De Leonardis, D. M. (1996). Emotional focus and source monitoring. *Journal of Memory and Language, 35*, 135–156.

Kensinger, E. A., & Corkin, S. (2003). Memory enhancement for emotional words: are emotional words more vividly remembered than neutral words? *Memory & Cognition, 31*, 1169–1180.

Lang, P. J., Bradley, M. M., & Cuthbert, B. N. (2001). *International affective picture system (IAPS): Instruction manual and affective ratings*. Tech. Rep. No. A-5, The Center for Research in Psychophysiology, University of Florida.

Marsh, R. L., & Hicks, J. L. (1998). Test formats change sourcemonitoring decision processes. *Journal of Experimental Psychology: Learning, Memory, & Cognition, 24*, 1137-1151.

Marsh, R. L., Hicks, J. L., & Cook, G. I. (2004). Focused attention on one contextual attribute does not reduce source memory for a different attribute. *Memory*, *72*, 183-192.

Mather, M., & Nesmith, K. (2008). Arousal-enhanced location memory for pictures. *Journal of Memory and Language, 58*, 449-464.

Richards, J. M., & Gross, J. J. (2000). Emotion regulation and memory: The cognitive costs of keeping one's cool. *Journal of Personality and Social Psychology*, *79*, 410–424.

Scheibe, S., & Blanchard-Fields, F. (2009). Effects of regulating emotions on cognitive performance: What is costly for young adults is not so costly for older adults. *Psychology and Aging, 24,* 217-223.

Spinrad, T. L., Eisenberg, N., Cumberland, A., Fabes, R. A., Valiente, C., Shepard, S. A., Reiser, M., Losoya, S. H., & Guthrie, I. K. (2006). Relation of emotion-related regulation to children's social competence: A longitudinal study. *Emotion, 6,* 498-510.

Tamir, M., Chiu, C. Y., & Gross, J. J. (2007). Business or pleasure? Utilitarian versus hedonic considerations in emotion regulation. *Emotion, 7,* 546-554.

Tamir, M., & Ford, B. Q. (2009). Choosing to be afraid: Preferences for fear as a function of goal pursuit. *Emotion, 9,* 488-497.

Van Dijk, E., & Van Kleef, G. A. (2008). A social functional approach to emotions in bargaining: When communicating anger pays and when it backfires. *Journal of Personality and Social Psychology, 94,* 600-614.

Table1: Hit and False Alarm Rates (Means and Standard Deviations)

	Negative		Neutral		Positive	
	Hit	FA	Hit	FA	Hit	FA
Encode	.98 (.07)	.07 (.14)	.90 (.13)	.04 (.08)	.89 (.11)	.09 (.15)
Enhance	.97 (.03)	.04 (.07)	.92 (.10)	.03 (.05)	.90 (.08)	.03 (.06)
Decrease	.96 (.07)	.03 (.07)	.91 (.10)	.04 (.07)	.90 (.10)	.03 (.07)

Table 2: Corrected Recognition (Mean and SD)

	Negative	Neutral	Positive
Encode	.91 (.18)	.85 (.19)	.81 (.20)
Enhance	.93 (.07)	.89 (.11)	.87 (.11)
Decrease	.92 (.12)	.87 (.13)	.87 (.12)

Table 3: CSIM Scores (Mean and SD)

	Negative		Neutral		Positive	
	Left	Right	Left	Right	Left	Right
Encode	.67 (.17)	.75 (.20)	.72 (.18)	.79 (.21)	.76 (.16)	.67 (.15)
Enhance	.56 (.22)	.80 (.17)	.67 (.20)	.80 (.17)	.68 (.18)	.70 (.18)
Decrease	.61 (.17)	.82 (.19)	.60 (.26)	.82 (.18)	.63 (.22)	.76 (.15)

Table 4: ACSIM Scores (Mean and SD)

	Negative	Neutral	Positive
Encode	.71 (.14)	.75 (.14)	.71 (.09)
Enhance	.68 (.15)	.73 (.15)	.68 (.12)
Decrease	.71 (.14)	.70 (.18)	.69 (.16)