

**Commentary:**

**WHEN YOUNGER ADULTS LOOK LIKE OLDER ADULTS.  
A COMMENTARY ON “A CROSS-CULTURAL  
EXAMINATION OF EMOTIONAL MEMORY  
PROCESSING: US vs. AFGHANISTAN.”**

Andrea J. Sell, Ph.D.  
*California Lutheran University, USA*

**Abstract**

Emotion plays a key role in people’s recollection of their lives, but the way it does so may be shaped by cross cultural differences. Sharifi and Chung (2014; see this present issue of JISS) provide evidence for such a role of emotion in memory by demonstrating how Afghan adults may “regulate” their emotion and memory differently than people in Western cultures. The authors nicely articulate their findings from the perspectives of Socioemotional Selectivity Theory, the Affect Valuation Theory, and cross-cultural differences in poignancy. In this commentary, I first clarify terms and methodologies relating to the target paper, followed by an extended discussion of the theories and findings presented in the paper. In so doing, I offer new hypotheses, some of which may be testable with the authors’ current data while others are simply proposed for consideration by future researchers examining memory effects among cross-cultural populations

**Keywords:** Emotional memory, evolutionary perspective, socioemotional selectivity theory

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AUTHOR NOTE: Please address all correspondence to: Dr. Andrea J. Sell, Department of Psychology, California Lutheran University, 60 West Olsen Road #3800, Thousand Oaks, CA 91360, USA. Email: [asell@callutheran.edu](mailto:asell@callutheran.edu)

## COMMENTARY

The ability to remember the past in the service of acting in the future is one of most important aspects of human cognition (e.g., Glenberg 1997; Anderson 1996, p. 363, Anderson, 1991). Indeed, a variety of research has shed light on how emotional memories sway our gut reactions, our conscious decisions, and, ultimately, our behaviors (e.g. Pillemer, 1998). In adding to this burgeoning literature, Sharifi and Chung (2014; see this present issue of JISS) highlight the importance of how cultural factors play a role in the recall of emotional information.

In this commentary, I first clarify terms and methodologies relating to the target paper, followed by an extended discussion of the theories and findings presented in the paper. In so doing, I offer new hypotheses, some of which may be testable with the authors' current data while others are simply proposed for consideration by future researchers examining memory effects among cross-cultural populations.

### **Review of Terms, Methodologies, and Findings**

Many of the emotional memory effects described by Sharifi and Chung (2014) and other cognitive psychologists have similar connotations but also important distinctions. Thus, to lay a foundation for readers who are unfamiliar with cognitive psychological memory terms and to briefly summarize Sharifi and Chung's findings using these terms, I begin with a short review of the language used by cognitive psychologists.

First, it is important to note the distinction between the terms "positivity bias" and "positivity effect" when used by attention and memory researchers. A positivity *bias* (also referred to as the Pollyanna principle; Matlin & Stang, 1978) refers a main effect of stimuli valence in which positive information is better remembered than negative information. For example, a positivity bias occurs when individuals better remember pictures of flowers (positively valenced images) than thorns (negatively valenced images) (e.g., Charles, Mather, & Carstensen, 2003). The positivity *effect*, in contrast, refers to a participant age by stimuli valence interaction. The classic example is a perfect crossover interaction in which older people tend to remember positive pictures better than negative pictures, while younger adults show the opposite pattern (i.e., better memory for negative pictures than positive pictures) (Spaniol, Voss & Grady, 2008; Charles, Mather, & Carstensen, 2003 experiment 1; see Mather & Carstensen, 2005 for a review). However, some authors argue that a positivity effect is observed even in cases in which there is not such a perfect crossover interaction. For example, one may argue that a positivity effect still occurs when both older and younger adults remember more negative pictures than positive pictures, but the enhanced memory for negative over positive images is attenuated in older adults (relative to younger adults). In such a situation, there is no positivity *bias* despite the presence of a positivity *effect*. Thus, a positivity bias is not always needed for a positivity

effect to occur (Sharifi & Chung, 2014; Charles, Mather & Carstensen, 2003, experiment 2).

In addition to the term “positivity bias,” memory researchers also commonly use the term “negativity bias” to refer to instances in which negative information is better remembered than positive and neutral information (see Baumeister, Bratslavsky, Finkenauer & Vohs, 2001 for a review). Just as the positivity bias refers to a main effect, so too does the negativity bias. Although neither bias necessarily implicates age related variables, they are often referred to when discussing memory and aging (e.g., Thomas & Hasher, 2006; Mather & Carstensen, 2005).

Last, it is important to differentiate these specific biases from the general term “emotional enhancement.” While both positive and negativity biases refer to a main effect of stimuli valence (though in opposite directions), emotional enhancement refers to a main effect of stimuli arousal. In particular, the term “emotional enhancement” is used to describe situations in which one observes an enhanced memory for information associated with emotional arousal (see Hamann, 2001 for review). For example, both of the words *killer* and *romantic* have similarly high emotional arousal ratings, but the valence of *killer* is very low (negative connotations) while the valence of *romantic* is high (positive connotations). As a result, both of those words would be remembered well if emotional enhancement were present.

In addition to differentiating between the specific effects described by memory researchers, it is also important to understand the types of methodologies those researchers employ in order to obtain those effects. Indeed, many of the effects mentioned above are often demonstrated with varying types of laboratory based experiments. For example, some researchers focus on retrieval of information from memory, while other researchers focus on what people attend to and subsequently encode into memory.

The study of memory retrieval includes the recall of information as well as the recognition of information. Recall can take a number of forms, of which the most straightforward is free recall. Participants engaging in free recall, for example, may be given a blank sheet of paper and asked to write down as much of the original information as they can remember and in any form or order they choose to remember it. Recognition tasks, in contrast, typically provide participants with information and ask them to pick out the information that was presented previously. One example is a typical multiple choice question. Another common example is the old-new task, in which participants must decide whether the information at hand is old (presented previously) or new (not presented previously).

When focusing on memory encoding, the dependent variable is often the amount of time (measured in milliseconds) a participant spends looking at a piece of information. Sometimes, it is the amount of time one spends looking before *voluntarily* moving on to the next piece of information. Other times, it is the amount of time one spends looking before *involuntarily* moving their attention elsewhere. One common paradigm assessing

the latter form of attention/encoding is the “dot-probe” paradigm. In a typical dot-probe experiment, an item is placed in a particular location on a screen. After a few seconds, the item disappears, and a dot appears somewhere else on the screen. The dependent variable is the time it takes for participants to locate the dot in a new location. Participants who are attentively “glued” to the item take more time to locate the dot in a new location (e.g., MacLeod, Mathews, & Tata, 1986; Mather & Carstensen, 2005).

Whether focused on retrieval or encoding, memory researchers place great value on stimuli control. This is because numerous factors, inherent in the stimulus itself, can influence memory performance. For example, on recall tests, people remember high-frequency information (e.g., the word “dog”) better than lower frequency information (e.g., the word “coyote”) (e.g., Taft, 1979). Thus, it is important that researchers match frequency across conditions such that each condition has the same number of low and high frequency words, or that all words are about the same frequency. A number of other dimensions can also affect memory, and, therefore, require careful control over when selecting stimuli (e.g., arousal, concreteness, imagiability, etc.). This type of information can be found in databases such as the MRC psycholinguistic database (Coltheart, 1981) and the Affective Norms for English Words database (ANEW, Bradley & Lang, 1999), which provides normative emotional ratings as well as calculations of valence, arousal, dominance and word frequency for over 1000 English words. Similar databases are also compiled for pictures (e.g., the International Affective Picture System, IAPS: Lang, Bradley, & Cuthbert, 2008), and even sounds (e.g., the International Affective Digitized Sounds, IADS; Bradley & Lang, 1999).

With these terms in mind, I now briefly summarize the methodology and findings of Sharifi and Chung (2014). With regards to methodology, they focused on free recall of images, which were normed for valence and arousal (Chung, 2010). With regards to findings, they found evidence for both a negativity bias (negative pictures were remembered better than neutral and positive images) and a positivity bias (positive pictures were remembered better than neutral images). They also observed a positivity effect in the U.S. sample. This positivity effect was not the typical crossover interaction. Rather, despite negative pictures being better remembered than positive pictures for both older and younger US adults, older US adults still remembered more positive information than younger US adults. This positivity effect did not emerge among the Afghani sample.

### **Extended Discussion and New Predictions**

Sharifi and Chung (2014) discuss their findings from the perspectives of Socioemotional Selectivity Theory (SST; Carstensen, Isaacowitz, & Charles, 1999), Affect Valuation Theory, and cross-cultural differences in collectivity. Here, I extend upon some of their discussion by positing two general questions: 1.) Does the SST suggest cross-cultural differences in emotional meaning or perceived timelines or both? 2.) Can an

evolutionary perspective add to cross-cultural studies on memory effects? In asking these questions, I hope to provide some fodder for a more general discussion about cross cultural differences in cognitive processes.

*Does the SST suggest cross-cultural differences in emotional meaning or perceived timelines or both?* As Sharifi and Chung (2014) nicely articulate, the SST suggests that memory effects are primarily predicted by the time perspective; someone who perceives their personal time-line to be short prioritizes emotionally meaningful thoughts, while someone who perceives their personal time-line to be long prioritizes informational resources. For Americans, emotionally meaningful thoughts are typically more positive than negative (e.g., thoughts of family, friends, and happy emotions), while informational resources are typically more negative than positive. Hence, older US adults tend to remember positive information, while younger US adults tend to remember negative information (Carstensen, Isaacowitz, & Charles, 1999). Based on their findings, Sharifi and Chung suggest that what one finds meaningful varies across cultures. Afghani older adults (whose personal time-lines are implied to be short, like those of US older adults) should still focus on emotionally meaningful thoughts, but, given the unpredictable and dangerous nature of their war-torn country, Afghani older adults may view both positive and negative information as emotionally meaningful. Hence, the lack of positivity effect among the Afghani sample.

While Sharifi and Chung's (2014) explanation may be true, I believe there is another alternative explanation, consistent with the SST that needs to also be considered. Perhaps, rather than changing what one perceives as emotionally meaningful, the war in Afghanistan may have changed how people view their time-lines. In particular, younger Afghani adults may have a shortened time-perspective (similar to older adults) because of the dangerous and unstable conditions associated with the war. Given the SST, this shortened time perspective should encourage younger Afghan adults to focus more on emotionally meaningful thoughts. In other words, the younger adults in Afghanistan may perform similarly to typical older adults, remembering the positive information just as well as the older adults did.

Indeed, previous literature supports this hypothesis. Younger adults with a terminal illness show memory biases in favor of positive information, similar to the biases observed among older adults (Carstensen & Fredrickson, 1998). Along the same lines, college seniors who are at the end of their academic journey also avoided encoding negative images in favor of positive ones, while college freshmen, who are just beginning their academic journey did not differentially encode negative and positive information (Pruzan & Isaacowitz, 2006). Carstensen and Fredrickson (1998) argue that while age and time perspective are highly correlated (as you age, your time perspective gets shorter), the main factor in prioritizing positive, family-related emotions is the perception of endings. Thus, even if Afghan younger adults don't perceive their lives to be shortened because of

dangerous environmental factors, it is still possible to observe them perform similarly to typical older adults due to the perception of an "ending," with the regard to the end of the war. Indeed, a possible precedent for this effect has been set by Fung, Carstensen, & Lutz (1999). Fung, Carstensen & Lutz showed no difference in social preferences for emotionally meaningful social partners during the handover of Hong Kong to the People's Republic of China, which could be perceived as a cultural ending.

Thus, this literature suggests that the positivity effect may not have been observed among the Afghan sample, in part, because of the high value the Afghani younger adults place on positive information, due to a shortened time perspective. To test this, one could compare the number of positive images recalled by Afghani younger adults and US younger adults. If this hypothesis is correct, these two groups should be much different; Afghani younger adults should encode and recall more positive pictures than U.S younger adults. Moreover, one could compare the numbers of positive, negative and neutral images recalled by Afghani younger adults and U.S older adults. If this hypothesis is correct, U.S older adults will not differ from Afghani younger adults in recall rates of the pictures. In sum, differentiating between the possibilities that environmental conditions (like those in Afghanistan) shape emotional meaning (as suggested by Chung) versus the perceived timeline (as suggested here) is crucial for a complete understanding of how culture shapes emotional memory.

*Can an evolutionary perspective add to cross-cultural studies on memory effects?* Cross-cultural studies like that of Sharifi and Chung (2014) are valuable for numerous reasons, not the least of which is testing how varying environments shape the way our minds operate. Indeed, Sharifi and Chung nicely demonstrate how the different environments of Afghanis and Americans influence the presence/absence of a well-known cognitive phenomena, like the positivity effect. However, the differences in these environments may have effects on memory that go well beyond the positivity effect.

Most researchers agree that memory and attention serve a functional value (e.g., Glenberg, 1997). Some researchers hypothesize that what we pay attention to, and what we subsequently remember has evolved to help us find food, reproduce, and avoid danger (Nairne, Thompson, & Pandeirada, 2008; Nairne & Pandeirada, 2008), with the latter of these being of particular significance to Sharifi and Chung's (2014) study. This evolutionary perspective suggests that in environments perceived as dangerous, specific threat-related information becomes a focus of encoding and retrieval (Öhman & Mineka, 2001; Fox, Russo, Bowles, & Dutton, 2001; Pratto & John, 1991). For example, if you are hiking in an area where you've heard of recent cougar attacks, you are likely to be attending to information relevant to the danger of cougars, such as unknown sounds in the woods. You might also be retrieving information from memory to help you decipher potential signs of danger (e.g., recalling what a cougar's tracks look like). In contrast, you probably are not looking environmental items that could not signal danger, such as flowers.

Although danger may down-regulate the encoding of certain positive stimuli (e.g., flowers), dangerous environments can also heighten encoding and retrieval of positive stimuli, if those stimuli are relevant for safety. For example, kin and friends become vitally important for protection in dangerous environments. Indeed, groups (often comprised of family members and close friends) have historically provided some of the best protection (Mead & Maner, 2012).

In sum, an evolutionary approach suggests that memory in dangerous situations is shaped less by the valence of stimuli and more by the value of those stimuli for enhancing or decreasing safety. Consequently, an evolutionary perspective suggests that when life-perspective is short due to dangerous environment such as that in a culture burdened by war (e.g., Afghanistan), specific types of both negative stimuli (e.g., the object can kill you) and positive stimuli (e.g., the people who can save you) should be of high priority to attend to and remember. This hypothesis cannot be tested with the data at hand in Sharifi and Chung (2014), unless some of the images that were used in the memory task can be designated as specific threats (e.g., guns) and specific safeties (e.g., kin, or family oriented). If so, singling those items out in a smaller item analysis could reveal whether items that are family oriented (such as a house), are better remembered than items that are not family oriented (such as a flower).

In sum, an evolutionary perspective is a source of potential hypothesis about certain cultural differences (e.g., differences in environmental conditions of danger) that could be tested with their database or in future studies examining similar populations. It would be fruitful to explore the different types of predictions from these perspectives.

Overall, Sharifi and Chung (2014) do cognitive science a great service in the collection and dissemination of this data. Researchers in cognitive science, particularly memory and language researchers have historically focused on similarities across individuals, at best ignoring and at worst trying to disprove any differences between individual and cultural dissimilarities (Levinson, 2012). In the end, even in its exploratory nature, Sharifi and Chung remind researchers, cognitive and others, to be aware of the importance of the possibility that situational factors, including long-term factors that influence cultural environments, such as war, can change the way we process information.

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**AUTHOR INFORMATION:**

**Andrea J. Sell** is an Assistant Professor of Psychology at California Lutheran University. Her research interests include the spatial representations of abstract thought and the memory processes involved in meeting social goals. Address: Dr. Andrea J. Sell, Department of Psychology, California Lutheran University, 60 West Olsen Road, #3800. Thousand Oaks, CA 91360, USA. Email: [asell@callutheran.edu](mailto:asell@callutheran.edu)