Exploring the Effect of Time Horizon Perspective on Persuasion: Focusing on Both Biological and Embodied Aging

Ahreem Ahn and Dongwon Min *

Department of Marketing, Dankook University, Yongin 16890, Korea; ahreem@dankook.ac.kr
* Correspondence: dwmin@dankook.ac.kr; Tel.: +82-31-8005-3435

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Abstract: According to socioemotional selectivity theory (SST), aging influences information processing style depending on the time horizon perspective (THP). In detail, older adults who perceived time as limited prefer emotional to factual messages, whereas younger adults who believed time to be expansive show the opposite pattern. When individuals pursue a specific goal, they tend to process goal-relevant information in more detail, which in turn evaluates factual messages positively. We investigated the moderating effect of goal pursuit on the relationship between biological aging and persuasion in October 2016 (Experiment 1). Results showed that both older and younger adults were more favorable toward factual (vs. emotional) messages when they pursue a goal. Experiment 2, conducted in March 2017, examined whether embodied aging affects persuasion. The results indicated that younger adults with embodied aging did not show a similar persuasion pattern with actual older adults, while embodiment studies demonstrated that younger adults with embodied aging act like older adults. That means that only THP changes the angle leading to processing. In the final experiment, conducted in November 2018, younger adults primed with limited THP preferred emotional to factual messages, which was similar to actual older adults’ responses. Moreover, we showed that emotional attachment mediated the effect of message types on the persuasion of younger adults with limited THP.

Keywords: aging; time horizon perspective; message type; persuasion; goal pursuit; emotional attachment

1. Introduction

Older adults’ information-processing abilities become less detailed and begin to decline as they age, because neuron movement is reduced [1–4]. According to the psychological view, people place significant weight on the time remaining in their lives as they age based on socioemotional selectivity theory (SST), which has one key aspect of the time horizon perspective (THP). That is, the pressure to use their remaining time well brings about different types of information processing. Older adults who perceive their time as limited tend to pursue an emotion-based orientation, whereas younger adults tend to adopt a knowledge-based orientation because they perceive a greater amount of time remaining [5–10].

Aging influences people’s responses to various environmental stimuli because of their different orientations, which are dependent on their THP. For example, older adults focus more on emotional than factual messages, while the opposite is true for younger adults. The motivation to process information also differs between older and younger adults. When processing information, older adults are more motivated to maintain their current positive emotional state than to acquire new knowledge. By contrast, younger adults’ primary motivation for processing information is to obtain knowledge. Older adults tend to believe that their remaining life span will not change dramatically through
absorption of knowledge; thus, emotion becomes more important to them than knowledge. Conversely, younger adults want to learn for their future, therefore, they tend to regard the acquisition of knowledge as more important than maintaining their emotional state [11,12]. This phenomenon can be explained by emotion regulation, which Gross and Thompson [13] defined as an effort to maintain one’s positive emotional state.

According to emotion regulation and aging research, older adults regulate their emotions more than young adults do [12,14]. Consistent with SST, the majority of research related to emotion regulation asserts that the perceived importance of information type (factual, emotional) depends on aging, which is a determinant of the persuasion of an advertising message. Therefore, the current research posits that older adults will have more favorable attitudes toward emotional (vs. factual) messages, while younger adults will prefer factual to emotional messages.

Many factors influence information processing, one of which is the individual’s goal. The present study proposes that the effect of aging on persuasion depends on the association of the message with the individual’s goal. When people pursue a specific goal, their information processing varies with the level of relevancy between that goal and the information for processing [15–18]. Therefore, they might set a higher value on goal-relevant than goal-irrelevant information, pay more attention to that information than less relevant information, and process that information in minute detail. In contrast, when confronted with goal-irrelevant information, people might perceive it as unnecessary for their information processing and thus not pay attention to it [15]. Huffman and Houston [19] demonstrated that older adults primed with a specific goal tend to have a strong motivation for gathering information and knowledge about that goal. Consequently, they focus on both factual and emotional types of messages.

A wealth of research indicates that being primed with information about older adults induces patterns of thinking and behavior that are similar to those of older adults, a state explained by embodied cognition theory. This theory maintains that actual bodily movement and activation of specific concepts influences thinking, judgment, and bodily responses. However, the priming of specific concepts can be activated by stereotypes associated with these concepts. We expect that the priming of older adults will not have an effect on persuasion because, according to SST, a key factor in the effect of aging on persuasion is THP, which can only be experienced by living for a long time.

This article investigates the effect of both biological and embodied aging on persuasion, along with the potential moderating role of goal relevancy in this relationship. Specifically, in contrast with SST, we posit that when pursuing a goal, even if they have a limited idea of their future life span, older people will have positive attitudes toward factual (vs. emotional) messages, similar to younger people who perceive a greater future life span. Further, we examine that embodied aging would not affect processing because THP, which is a key determinant of SST, could not be changed in just imagination about aging.

1. Literature Review

1.1. Socioemotional Selectivity Theory (SST)

Based on SST [5], people tend to assess their remaining life span—specifically, their THP—as being either limited or expansive. In this study, we focus on how THP influences information processing. People with a limited THP tend to be present oriented, focusing on their experience and seeking satisfaction in the moment [20]. They might try to draw an emotional meaning from their current state of mind and pay attention to social connectedness, emphasizing aspects of emotion and intimacy in their social relationships [9]. Conversely, people with an expansive THP tend to be future oriented, believing that satisfaction, experiences and feelings in the future are more important than those in the present; therefore, they tend to pay more attention to collecting knowledge and planning for the future. Prior research has treated aging as a determinant of THP and found that older adults have a time-limited view whereas younger adults have a time-expansive view [5,7,20]; therefore, older
adults consider the acquisition of knowledge less important than emotional aspects and have an emotion-related orientation. By contrast, younger adults have a knowledge-related orientation because they focus on novelty seeking and the absorption of knowledge.

Williams and Drolet [10] investigated the effect of THP on attitudes toward aging in relation to preferences for and memories about advertisements. They examined the effect of aging on persuasion by providing 10 sentences of information about a product, each of which contained dissimilar words. For example, the first sentence of the description with an emotionally appealing message was, ‘If your passion is coffee, then your pleasure will be Coffea.’ The first sentences for the rationally appealing message were, ‘For your next cup of coffee, choose Coffea. A gourmet blend at grocery store prices, Coffea provides an excellent value.’ Results showed that older adults who had a limited THP had more positive attitudes toward the first option and could recall relatively more information from this appeal, whereas the opposite was true for younger adults who had an expansive THP. However, Drolet et al. [9] found that this pattern of information processing depended on the product category type (i.e., hedonic or utilitarian) and showed that, regardless of the type of product, older adults preferred affective to rational advertisements. However, while young adults preferred affective to rational advertisements for hedonic products, they preferred rational to affective advertisements for utilitarian products. Fung and Carstensen [7] showed that older adults held more positive attitudes toward products relevant to loving or caring (i.e., ‘Capture those special moments,’ ‘Stay healthy for the ones you love’) than products relevant to absorption of knowledge or future success (i.e., ‘Capture the unexplored world,’ ‘Stay healthy for your bright future’). Conversely, younger adults preferred factual messages associated with skills or knowledge for the future to emotional messages associated with current emotional states or experiences. Further, because older adults tend to focus on their emotional state in daily life, they usually regulate their emotions to maintain a positive state, which involves the process of cognitive control, such as inhibiting goal-irrelevant information, selecting the most important information from various stimuli, and encoding and retrieving information [13,21,22]. Recent research showed that THP influences impulsive buying depending on the type of relationship deficits [23]. They insisted that a lack of emotional attachments is associated with limited THP, whereas a lack of social connections is related to expansive THP. Therefore, emotionally (vs. socially) lonely participants with limited THP make more impulsive purchasing, whereas socially (vs. emotionally) lonely participants with expansive THP make more impulsive purchasing.

1.2. Goal Pursuit

Individual behavior is largely goal directed, with the goal being a desired result or end state that is realized only when people believe they have attained it [24–26]. A goal starts as a mental picture of something that people believe they can attain in the future by engaging in an action [27]. Bagozzi and Dholakia [28] investigated the effects of goal setting and pursuit on behavior and found that people who set clear goals and have a strong desire to achieve them have a strong motivation for processing goal-relevant information, elaborating on the information received, and processing a greater amount of information. Goal setting and pursuit affect information processing because the cognitive structure of the goal comprises goal-related information, behavior, and context. The goal-setting process contains schema, stereotyping, and attitudes and leads to one or more actions [29,30]. For example, on activation of the goal of saving money, people concretely generate money-saving actions. However, Custer and Aarts [31] showed that the cue related to saving induces future action (e.g., trying to secure higher interest rates, seeking ways to increase the amount of money deposited) only when people have positive feelings about the desired end state. Thus, goal-oriented action occurs only when the goal is envisioned mentally, in addition to being activated.

A goal can arise in various ways, including consciously— with intent—and unconsciously, in which the goal comes from an environmental cue linked to memory and is only activated in certain situations [29]. Exposure to the specific situation activates the goal automatically through the stimulus–response conditioned mechanism. In goal setting, the motivation for pursuing the
goal becomes stronger, while the means for achieving it are automatically activated. Many aspects of individual behavior, such as purchasing and decision making, are goal oriented [19]. Bagozzi and Dholakia [28] investigated the effects of goal setting and pursuit on consumer behavior and showed that people who set clear goals and have a strong desire to achieve them concentrate on and categorize goal-relevant information and selectively recall memories [18,32]. However, when people process goal-irrelevant information, their motivation for and capability of processing information is diminished. People perceive goal-relevant information as more accessible and have a stronger motivation for processing information when exposed to goal-relevant information [33]. Because the goal is set in accordance with the cognitive knowledge structure, the accessibility of goal-relevant information increases [34]. Guinote [24] argued that successful goal accomplishment comes from the ability to concentrate on the attainment of the goal and ignore unnecessary information.

According to transaction theory, people can take one of two stances when reading a text: efferent or esthetic [35,36]. When people choose the efferent stance, they tend to analyze, abstract, and accumulate knowledge after the reading. On the other side, the aesthetic stance is involved primarily with attention to experiencing what is being evoked during the reading [35]. For example, when visiting a website, people who are searching with purpose adopt an efferent stance; however, people who are browsing take an aesthetic stance. In particular, pre-purchase deliberation is related to the searcher’s purpose for visiting the website. Because searchers are purposive and task specific, they tend to glean facts rather than experience and concentrate on obtaining information efficiently and scrutinizing all information related to their goal [19,35,36]. People who pursue certain goals are motivated to acquire, encode, and select information [37]; therefore, they focus on specific features or information they can obtain [19]. We expect that both older and younger adults would have more favorable attitudes toward factual (vs. emotional) messages when they are primed with certain goals.

1.3. Embodied Aging

Prior research has shown that younger adults think and behave similarly to older adults when they are instructed to simulate older adults’ behaviors, a process that can be explained by embodied cognition theory. Embodied cognition involves the representation, processing, and memory of information through physical experience [38,39], and the key to this concept is that certain sensory and motor systems of the human body influence thoughts and emotions in daily life [40]. Therefore, previous research on embodied cognition has focused on the role of bodily perception in moving the human mind and influencing cognitive processes, such as judgment and choice (e.g., Reference [39]). According to the embodied cognition perspective, actual bodily states and simulation of experience influence perception, behavior, and introspection through a modality-specific system in the brain [41]. For example, Larson and Billeter [42] investigated that bodily states such as leaning back in a chair influenced consumer choice of compromise option by activating the concept of balance. Prior research on embodiment has indicated that embodied aging activates actual bodily responses similar to those of older adults. Bargh, Chen and Burrows [43] showed that people who completed an elderly version of a scrambled-sentence task, which contained words related to older adults such as old, wrinkled, wise, and retired, walked more slowly down the hallway when leaving the experiment than people who completed a neutral version of the task. Similarly, people who were repetitively exposed to the term ‘basketball player’ threw a heavy ball farther than people who were repetitively exposed to the term ‘older adults’ [44]. Chambon [45] showed that people exposed (vs. not exposed) to older adult-related words took longer to walk up the same steep hill or street. These consistent conclusions indicate that priming people with cues that bring to mind older adults evokes the perception of actually becoming older adults, resulting in the emergence of bodily responses associated with older adults.

In this article, we suggest that the effect of both biological and embodied aging on information processing depends on goal pursuit (see Figure 1). When people pursue a specific goal, they are motivated to process goal-relevant information, engage in detailed processing, and put a great amount of effort into obtaining factual and objective information. Thus, we expect that people primed to pursue
a specific goal will have more positive attitudes toward factual than emotional messages, regardless of aging. In addition, we expect that the effect of aging on information processing, which previous SST research found, will not appear when people are pursuing specific goals.

Figure 1. Conceptual research model.

2. Experiment Overview

The goal of this research was to examine the impacts of THP and goal pursuit on persuasion. In Experiment 1, we investigated the effect of aging on persuasion in a sample of older and younger adults. Specifically, we examined whether the persuasion pattern varied depending on goal pursuit and message type (emotional vs. factual). In Experiment 2, we investigated the effect of embodied aging on persuasion in a sample of younger adults only to confirm whether the results would be consistent with those of Experiment 1. We primed half the participants in Experiment 2 with terms associated with older adults. The purpose of Experiment 2 was to examine the impact of embodied aging on persuasion by priming old age–related terminology. In Experiment 3, we examined whether emotional attachment mediated the effect of THP on persuasion.

2.1. Experiment 1

In Experiment 1, we investigated the effect of aging on persuasion with regard to the type of message, comparing groups of participants who were and were not primed with a specific goal pursuit. As mentioned previously, according to SST, older adults have more positive attitudes toward emotional (vs. factual) messages, while younger adults have more favorable attitudes toward factual (vs. emotional) messages. However, we expected that both younger and older adults would have favorable attitudes toward factual (vs. emotional) messages when primed to pursue specific goals because people tend to focus on factual messages when pursuing goals.

2.1.1. Method

Participants and design. Experiment 1 had 246 participants, 123 of whom were classified as older adults (age range: 65–83; $M = 71.81$, $SD = 4.82$) and 122 of whom were classified as younger adults (age range: 20–28; $M = 23.66$, $SD = 6.20$). This experiment was a 2 (age: old vs. young) × 2 (goal pursuit: goal priming vs. control) × 2 (message type: emotional vs. factual) between-subjects design. Attitude toward the product in the advertisement was the dependent variable.
Procedure and materials. As a target product category, we selected a sun cream. We used an unfamiliar brand name ‘Spela’ which exists in reality to increase external validity. The data of participants who answered ‘yes’ to the question of knowing or hearing ‘Spela’ were excluded from the analysis. This experiment took 15 min. To avoid bias, before the start of the experiment, we told the participants that the purpose of the experiment was to measure the effectiveness of new product advertisements. Participants were randomly assigned to one of two experimental conditions (goal priming or control). Those in the goal priming condition were given 3 minutes to read the scenario; then, they were asked to read an advertisement message. The scenario contained several sentences to activate specific goals about buying sun cream (e.g., “Ultraviolet rays in the wintertime are not good for the skin, much the same as ultraviolet rays in the summer time. What should I do?”). In the control condition, participants were asked to read the advertisement; they were not shown the scenario beforehand.

We created two types of advertisements for this experiment, both of which contained the brand name and statements describing the target product, such as “Always hold your head up high, always feel free to walk outside in the sunlight.”

For message type, the emotional advertising message read, “Go out into the bright world with magical light Spela sun cream!”, and the factual advertising message read, “Spela sun cream, SPF 47+/PA+++! Zero percent sticky and powerful sunblock function!” After reading the message, participants indicated the degree to which they perceived the message as relevant to their pursued goal on a 7-point scale (1 = not at all, 7 = very much). Participants then answered three items about their attitudes toward the product in the advertisement (i.e., good, positive, and favorable) on a 7-point scale (1 = not at all, 7 = extremely; \( \alpha = 0.92 \)), as described in Lee and Min [46]. Next, participants answered two questions about the emotional nature of the advertisement (“This advertisement made me focus on my feelings about the brand” and “This advertisement is directed at making me feel something about the brand”; \( \alpha = 0.91 \)) and two questions about its factual nature (“This advertisement made me focus on my thoughts about the brand” and “This advertisement was directed at making me think something about the brand”; \( \alpha = 0.88 \)) on a 7-point scale (1 = not at all, 7 = extremely), based on Drolet et al. [9]. In line with Williams and Drolet [10], to measure participants’ THP, we provided one sentence to all participants (i.e., “Enjoy your life”) and asked them to describe their THP using three items on a 7-point semantic differential scale (i.e., “This statement made me think about endings/beginnings, present/future, time is limited/time is limitless”; \( \alpha = 0.77 \)). Next, participants responded to three items to control for the other variables (i.e., “Do you have experience with using this sun cream?” and “Have you ever heard of this sun cream?”) and also provided their age and gender. Finally, we debriefed all participants and thanked them for their participation.

2.1.2. Results

Manipulation check. We excluded one participant who had heard of “Spela” from the experiment. Participants in the goal priming condition perceived the advertisement as more relevant to their goal than participants in the control condition (\( M_{\text{goal}} = 5.24 \) vs. \( M_{\text{control}} = 3.69 \); \( F(1, 242) = 112.84 \), \( p < 0.001 \)). To check the message type manipulation, we asked participants to indicate the degree to which they viewed the appeal as more emotional or factual, based on Drolet et al.’s [9] procedure. To create a single measure of message focus, we subtracted the items measuring factual focus from those measuring emotional focus; within the scoring range, a higher value indicates that participants viewed the message as relatively more emotional, while a lower value indicates that they viewed it as relatively more factual. Participants viewed the emotional (vs. factual) advertisements as less factual and more emotional (\( M = 4.68 \) vs. \( M = 3.01 \); \( F(1, 243) = 83.47 \), \( p < 0.001 \)).

Experimental results. A 2 (age) × 2 (goal pursuit) × 2 (message type) ANOVA of attitudes revealed that older participants had more favorable attitudes (\( M = 4.40 \)) than younger participants (\( M = 4.73 \); \( F(1, 237) = 8.13 \), \( p < 0.01 \)), that participants in the goal priming (vs. control) condition evaluated the advertisement more positively (\( M_{\text{goal}} = 4.97 \) vs. \( M_{\text{control}} = 4.15 \); \( F(1, 237) = 53.75 \), \( p < 0.001 \)), and that
there were no main effects of message type ($p > 0.10$). The age × goal pursuit is not significant ($p > 0.10$), however, both goal pursuit × message type ($F(1, 237) = 27.10, p < 0.001$) and age × message type ($F(1, 237) = 3.27, p < 0.08$) interactions were significant.

A significant age × goal pursuit × message type interaction also emerged ($F(1, 237) = 23.70, p < 0.001$). As Figure 2A illustrates, in the goal priming condition, there was no main effect of age ($M_{\text{older}} = 4.88$ vs. $M_{\text{younger}} = 5.05; F(1, 121) = 1.35, p > 0.1$), participants preferred the factual ($M = 5.32$) message to the emotional message ($M = 4.62; F(1, 121) = 20.60, p < 0.001$), and the age × message type interaction was significant ($F(1, 121) = 4.85, p < 0.05$). The results of a planned contrast test showed that both older ($M_{\text{emotional}} = 4.35$ vs. $M_{\text{factual}} = 5.40; t(237) = 4.75, p < 0.001$) and younger ($M_{\text{emotional}} = 4.88$ vs. $M_{\text{factual}} = 5.24; t(237) = 1.64, p < 0.06$) participants primed with a specific goal had more positive attitudes toward factual than emotional messages.

In the control condition (see Figure 2B), younger participants ($M = 4.39$) had more favorable attitudes than older participants ($M = 4.52; F(1, 116) = 8.08, p < 0.01$), the emotional (vs. factual) message induced more positive attitudes ($M_{\text{emotional}} = 4.39$ vs. $M_{\text{factual}} = 3.93; F(1, 116) = 8.13, p < 0.01$), and the age × message type interaction was significant ($F(1, 116) = 21.53, p < 0.001$). The results of a planned
contrast test showed that when confronted with an emotional (vs. factual) message, older participants were more persuaded by the advertisement ($M_{\text{emotional}} = 4.52$ vs. $M_{\text{factual}} = 3.32$; $t(237) = 5.37$, $p < 0.001$); in contrast, younger participants evaluated the factual message ($M = 4.52$) more positively than the emotional message ($M = 4.23$; $t(237) = 1.46$, $p < 0.05$). Older participants ($M = 2.26$) viewed time as more limited than younger participants ($M = 4.08$; $F(1, 243) = 152.51$, $p < 0.001$). There were no significant effects of control variables and gender ($ps > 0.10$).

2.1.3. Discussion

Consistent with prior research, the results of Experiment 1 showed that in the control condition, older participants had more positive attitudes toward an emotional (vs. factual) message, while the opposite was true for younger participants. However, when participants were primed with a specific goal, both older and younger participants had more positive attitudes toward a factual than an emotional message. Therefore, we showed that the results of previous SST research were dependent on goal pursuit because people who pursued specific goal were strongly motivated to process goal-relevant information and tended to search for factual and objective information for the purpose of goal attainment.

We conducted Experiment 1 with both older and younger participants; however, we do not know whether the results are due to differences in biological age or age-related differences in views about environmental stimuli. Therefore, we investigated the effect of older-age priming (not actual old age) on persuasion in Experiment 2, in a sample of younger adults only. We primed half the participants with words related to older adults’ life but not the other half.

2.2. Experiment 2

2.2.1. Method

Participants and design. Participants were 242 undergraduate students at Dankook University (age range: 20–29; $M = 23.04$, $SD = 1.76$; female: 118), who received a nonmonetary reward worth 3000 won in exchange for taking part in the study (e.g., pen, file folder). We used a 2 (age priming: old vs. neutral) × 2 (goal pursuit: goal priming vs. control) × 2 (message type: emotional vs. factual) between-subjects experimental design. Participants were randomly assigned to one of the two conditions, and the dependent variable was attitude in Experiment 1.

Procedure and materials. Participants read the same scenario and advertisement message as in Experiment 1. Before the start of the experiment, we told the participants that the purpose of this experiment was to measure the effectiveness of new product advertisements. Next, we gave half the participants a fictitious story of the everyday life of one older adult (e.g., Let’s follow Kim’s routine. It is morning. After retiring, the calm atmosphere makes me lonely and lonely. My face filled with wrinkles in the mirror and countless white hair make me helpless) and asked to them summarize and write this story, which took 5 min (old condition); the other half did not receive both the story and instruction (neutral condition). Next, participants in the goal priming condition had 3 minutes to read the scenario, after which all participants read the advertisement and answered one question about goal relevancy and three items about attitudes toward the product in the advertisement ($\alpha = 0.67$), which were the same as in Experiment 1. They also indicated the degree to which they perceived the advertisements as emotional ($\alpha = 0.88$) and factual ($\alpha = 0.81$), as described in Experiment 1, and rated how vividly they imagined their life when they become older adults, on a 7-point scale (1 = not at all, 7 = extremely). Finally, we debriefed all participants and thanked them for their participation.

2.2.2. Results

Manipulation checks. We excluded two participants who had heard of ‘Spela’ from the experiment. Participants in the old (vs. neutral) condition indicated that they imagined their future in terms of becoming older adults more vividly ($M_{\text{old}} = 5.72$ vs. $M_{\text{control}} = 2.30$; $F(1, 238) = 983.14$, $p < 0.001$),
participants who read the scenario for a specific goal pursuit \((M = 5.21)\) perceived a higher level of goal relevancy than participants who did not read the scenario \((M = 3.69; F(1, 238) = 423.73, p < 0.001)\), and participants confronted with the emotional (vs. factual) message rated the advertisement message as inducing less rational and more emotional feelings \((M_{\text{emotional}} = -1.63 \text{ vs. } M_{\text{factual}} = 1.18; F(1, 238) = 479.21, p < 0.001)\).

Experimental results. A 2 (age priming) × 2 (goal pursuit) × 2 (message type) ANOVA on the attitudes measure the revealed main effects of age priming, goal pursuit, and message type. Specifically, participants primed with younger age \((M = 4.69)\) held more favorable attitudes toward the product than those primed with older age \((M = 4.57; F(1, 232) = 10.91, p < 0.005)\). Furthermore, participants in the goal priming (vs. control) condition held more positive attitudes \((M_{\text{goal}} = 4.95 \text{ vs. } M_{\text{control}} = 4.31; F(1, 232) = 266.52, p < 0.001)\) and those who read the factual message \((M = 5.01)\) had more favorable attitudes toward the emotional message \((M = 4.24; F(1, 232) = 379.55, p < 0.001)\). However, age priming × goal pursuit × message type was not significant \((F < 1, \text{ see Figure 3A,B})\).

![Figure 3](image-url). The effect of embodied aging on persuasion (Experiment 2).
2.2.3. Discussion

Regardless of message type, participants in both the old and the control condition held more favorable attitudes when they were cued to pursue a specific goal than when they were not. Specifically, participants were persuaded more by the factual (vs. emotional) message. The results of this experiment are consistent with those of Experiment 1 in terms of the condition in which younger participants pursue a specific goal. Experiment 2 showed that the information processing of participants primed with cues related to older adults was different from the information processing of actual older adults.

Importantly, the results of Experiment 2 were not consistent with prior research that has found that priming of terminology associated with older adults induces an older-age-related physical state [43–45]. The results implied that only THP changes the angle leading to process information, not embodied aging. In this experiment, younger adults are unable to be perfectly primed with older adults’ intrinsic characteristics, such as maturity which is directly related to THP, because they would lack experiences of life. While the results of prior research on embodied aging were affected by stereotypes about older adults [43], our results showed that some key factor depending on lifetime could not be changed.

According to prior SST research, people with an expansive THP attach importance to building new relationships and broadening their social relationship networks [7]. By contrast, people who view time as limited attach importance to increasing their emotional attachment to existing relationships rather than building new relationships. In line with this notion, we focused on THP rather than embodied aging and explored the role of emotional attachment, as a key underlying mechanism, in terms of why people with limited THP were more persuaded by the emotional (vs. factual) message and why they did not prefer the emotional to factual message when pursuing a specific goal. Therefore, the aim of Experiment 3 was to investigate the mediating role of emotional attachment on the effect of THP on persuasion. We expected that people with limited (vs. expansive) THP would exhibit strong emotional attachment and that they would be strongly attached to and hold more favorable attitudes toward the emotional than the factual message. However, we assumed that the mediating effect of emotional attachment would not be significant when participants were primed with pursuing a specific goal. Further, although previous research showed that sun cream had both utilitarian and hedonic attributes [9], there is a possibility that participants regarded sun cream to be a functional product which in turn they were more persuaded by factual (vs. emotional) messages. In the final experiment, therefore, we selected a new product category such as coffee which has both utilitarian and hedonic benefit.

2.3. Experiment 3

2.3.1. Method

Participants and design. We recruited 172 participants from Amazon Mechanical Turk. The mean age of the workers was 27.20 years (age range: 25–35; SD = 3.57), and 97 were female. We manipulated the conditions so that all participants had limited THP and randomly assigned them to the cells of a 2 (goal pursuit: goal priming vs. control) × 2 (message type: emotional vs. factual) between-subjects design. The dependent variable was attitudes toward the product.

Procedure and materials. We selected a coffee as a target product category based on Reference [10]. We used brand name ‘Con Soc’ that was not familiar to the participants and actually existed. The data of participants who answered ‘yes’ to the question of knowing or hearing ‘Con Soc’ were excluded from the analysis. Participants in the goal priming condition were exposed to the goal priming scenario about coffee (e.g., ‘It’s getting colder day by day. As the weather gets colder and I stay indoors mostly, I feel like my body is becoming more fatigued. What is such a drink that can make me lively, pleasant, and energetic?’), while those in the control condition were not. We created two types of coffee advertisements for this experiment, both of which contained the brand name “Con Soc” and statements describing the target product. For message type, the emotional advertising message read,
“If your passion is coffee, then your pleasure will be Con Soc”, and the factual advertising message read, “For your next cup of coffee, choose excellent Con Soc” based on Reference [10]. Afterwards, all participants read the coffee advertisement, with the first and last lines of the advertisement emphasizing the brevity of time, with statements such as “Life is short” and “Savor the moment” used to manipulate limited THP. Participants rated goal relevancy and attitudes ($\alpha = 0.94$) and completed manipulation check items for message type (emotional message: $\alpha = 0.89$; factual message: $\alpha = 0.90$). Next, in line with the procedure of Thomson, Maclnnis, & Park [47], they indicated the degree to which they felt an emotional attachment to the advertisement message (i.e., affectionate, friendly, loved, peaceful, passionate, delighted, captivated, connected, bonded, and attached; $\alpha = 0.96$) on a 7-point scale ($1 = \text{not at all}, 7 = \text{extremely}$). Finally, they answered questions about gender and age.

2.3.2. Results

**Manipulation check.** Participants who read the goal priming scenario perceived higher goal relevancy than those who did not read the scenario ($M_{\text{goal}} = 5.26$ vs. $M_{\text{control}} = 4.59$; $F(1, 170) = 11.93, p < 0.005$). Furthermore, those who read the emotional (vs. factual) message perceived it as inducing more emotional and fewer rational feelings ($M_{\text{emotional}} = 0.46$ vs. $M_{\text{factual}} = -0.24$; $F(1, 170) = 9.11, p < 0.005$).

**Experimental results.** We expected that emotional attachment would mediate the moderating effect of goal pursuit, corresponding to Model 7 in Hayes’s [48] work. Thus, we employed a bootstrapping method, using the PROCESS macro with 10,000 resamples [48]. We coded each message type condition (1 = emotional message, −1 = factual message) as the independent variable, attitude as the dependent variable, the continuous goal relevancy scores as the moderator, and emotional attachment as the mediator of the moderator. Participants in the goal priming (vs. control) condition had more favorable attitudes (95% CI: 0.18, 0.53; $\beta = 0.35$, $p < 0.001$), and the effect of emotional attachment on attitudes was also positively significant (95% CI: 0.04, 0.32; $\beta = 0.18$, $p < 0.05$). Both participants in control (vs. goal priming; 95% CI: −0.63, −0.30; $\beta = −0.47$, $p < 0.001$) and emotional (vs. factual; 95% CI: −0.50, −0.18; $\beta = −0.34$, $p < 0.001$) condition had more emotional attachment. The goal pursuit $\times$ message type interaction was significant (95% CI: 0.16, 0.48; $\beta = 0.32$, $p < 0.001$). More important, the mediation effect of emotional attachment was significant at emotional message (95% CI: −0.31, −0.01; $\beta = −0.14$), but it was not significant at factual messages (95% CI: −0.11, −0.01; $\beta = −0.03$). Taken together, the PROCESS results provide support for our assertion that emotional attachment mediates the moderating effect of goal pursuit on attitudes (95% CI: 0.01, 0.29; $\beta = 0.11$). In addition, there were no effects of gender ($p > 0.10$).

2.3.3. Discussion

The results of Experiment 3 showed that participants who viewed time as limited tended to focus on the emotional message in connection with an emotional attachment when they were not primed with pursuing a specific goal. However, there was a nonsignificant mediating effect of emotional attachment when they were primed with pursuing a specific goal. Because people are strongly motivated to process factual, objective, and highly goal-relevant information when they pursue a specific goal, in this type of situation, they tend to seek factual information or new knowledge, rather than becoming attached to something emotionally. Therefore, in the goal priming condition, the mediating effect of emotional attachment was not significant. In summary, emotional attachment mediated the effect of emotional message type on attitudes when participants with limited THP were not primed with pursuing a specific goal, while the mediating effect of emotional attachment was not significant when they were primed with pursuing a specific goal.
3. General Discussion

3.1. Managerial Implications

Both older and younger adults have more favorable attitudes toward a factual (vs. emotional) message when they are primed with pursuing a specific goal. However, when they are not primed with pursuing a specific goal, older adults hold more favorable attitudes toward an emotional (vs. factual) message, whereas younger adults have more positive attitudes toward a factual (vs. emotional) message. These findings are consistent with prior research on SST. From these results, companies could use, for example, consumer age when establishing a marketing strategy, emphasizing an emotional message in advertisements geared to older adults or a factual message in advertisements intended for younger adults. However, although older adults were more persuaded by an emotional (vs. factual) messages, there are other ways to establish a more effective marketing strategy. Specifically, to emphasize a factual message (e.g., a suggestion to use a specific utility company), marketers should activate specific goals for older adults by providing highly goal-relevant information to induce information processing of factual messages.

According to prior SST research, older adults hold more favorable attitudes toward emotional (vs. factual) messages, whereas the opposite is true for younger adults. However, we found that both older and younger adults were more persuaded by a factual (vs. emotional) message when they were primed to pursue a specific goal (Experiment 1). Furthermore, prior research has shown that people who view time as limited are more persuaded by an emotional (vs. factual) message, whereas people who view time as expansive are more persuaded by a factual (vs. emotional) message. However, our results indicate that people primed with a specific goal hold more favorable attitudes toward a factual (vs. emotional) message, regardless of the type of THP. With these results, we propose that when marketers working for a cosmetic company, for example, want to emphasize the specific utility of and provide a factual message about a cosmetic product (e.g., wrinkle prevention and improvement of skin elasticity), they also should include a highly goal-relevant message (i.e., antiaging) to activate consumers’ specific goals. Conversely, when emphasizing the emotional utility (e.g., self-satisfaction through beauty), they should focus on limited THP–related messages (e.g., “Life is short,” “Enjoy your short life”). This study provides instruction on the selection of message type to help marketers choose a message effectively and efficiently for use in an advertisement.

We also found that when people who viewed time as limited were primed to pursue a specific goal, the mediated moderating role of emotional attachment was not significant on the effect of message type on persuasion. However, when they were not primed to pursue a specific goal, they were more persuaded by an emotional (vs. factual) message because it allowed them to form an emotional attachment. We inspected in depth the effect of age on persuasion by directly measuring emotional attachment and by analyzing the mediating role of emotional attachment. Therefore, when marketers use emotional messages to communicate with older adults, they should increase emotional intimacy. For example, they could instill high emotional attachment in older adults by using anthropomorphic wording.

Age discrimination is a form of social discrimination and prejudice, especially for the elderly. Social norms that connect aging with mental and physical weakness alienate the elderly by restricting social participation of the elderly, no matter how healthy the spirit and body of the elderly individual is. Despite the individuality of individual elderly people and their differentiation from other elderly people, society recognizes and treats all elderly people equally based on the elderly’s high age. Such age discrimination is carried out both on a personal level and on a social level, and it is also important to consider the effects of repeated stereotypes, myths, direct expression through hate speech, and indirect expression through refusal of contact and exchange. In recent years, information and knowledge has emerged as a major social mechanism to replace existing capital and commodities. Unlike conventional general merchandise (such as clothes, shoes, food, etc.), information and knowledge are circulating rapidly through creation, utilization, and extinction, and both quantitative and qualitative changes are
beyond predictions. Therefore, social inequality (hierarchy, class, sex, education, region, etc.) is also widespread, and age is also a major factor that differentiates access and use of information. The results of this study provide implications for understanding the mechanisms and patterns of how older people process their environmental information, which is expected to be useful in that society maintains sustainable welfare beyond ‘ageism’ in terms of information and knowledge.

3.2. Theoretical Contribution

This study investigated the effect of embodied aging on persuasion (Experiment 2) and found that both participants primed with terminology associated with older adults and those not primed in this way held more favorable attitudes toward a factual (vs. emotional) message, regardless of goal pursuit priming. This result differs from the results of Experiment 1, in which older adults in the control condition held more favorable attitudes toward the emotional than factual message. We inferred that the reason for this was that younger adults’ THP was unaltered when they were primed with terminology associated with older adults. Younger adults cannot vividly imagine the maturity and expansive THP that results from the long life experienced by older adults. Therefore, the difference between the results of Experiments 1 (biological age) and 2 (embodied aging) indicate that THP does not influence the effect of embodied aging on persuasion, though biological age does have an effect on persuasion.

Further research could investigate the mediating role of mortality salience on the effect of message type on persuasion when people have limited THP. Prior research on mortality salience has indicated that older (vs. younger) adults have higher mortality salience and that they tend to focus on emotional rather than factual or material attributes [49]. Therefore, we assume that people with a limited THP will process emotional messages from a standpoint of high mortality salience. If so, the mediating role of mortality salience would be significant. However, when primed to pursue a specific goal, people’s fear of death could decrease and the value of life could become clearer, such that the approach, rather than inhibition, system is activated. In this case, the mediating role of mortality salience would not be significant. In this article, we examined the effects of THP and message type on persuasion in various ways.

Potential limitations of this study include the fact that THP and message type were manipulated simultaneously in one advertisement based on Williams and Drolet [10] in Experiment 3. In future research, THP could be manipulated in a different way instead of being manipulated through advertising such as sentence unscramble task [50]. For example, participants in limited THP conditions are allowed to complete the sentence using words such as short, limited, and present, whereas those in expansive THP conditions are presented with words such as long, extended and future. As an alternative method, participants could be exposed to these words repeatedly at regular intervals [45]. We hope that further research will bring more insights to this issue.

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