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New Directions in Theories of Emotion and Aging

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Summary and Keywords

The adult life span is characterized as a time of divergent trajectories. It is a time of compounding losses (such as physical, sensory, and cognitive declines) and is also a time of surprising growth (such as improvements in well-being and emotion regulation). These divergent trajectories present theorists with the paradox of aging: in the face of accumulating losses, how is it that as people age, they generally feel good and experience greater well-being? Theorists have grappled with this paradox and have focused on how motivational, cognitive, control, and social factors impact emotional development across the adult life span. These foundational theories have paved the way to a deeper understanding of adult life-span development, but they do not draw as deeply from theories in affective science. Some of the latest perspectives on emotion and aging offer integrative views, such as how older adults may experience different discrete emotion (i.e., anger versus sadness) from an evolutionary functional perspective. Other perspectives consider how an array of appraisal processes may change across adulthood (such as shifts in evaluations of self-control versus other-control for younger versus older adults). These newer approaches dig deeper into mechanistic explanations and underscore the need for greater theoretical integration. Later life is clearly a time of increased well-being, but the field is only on the cusp of understanding the mysteries of emotional experience in later life.

Keywords: emotion, aging, affect, adult development, gerontology, cognitive aging, social aging, motivation

As we age, we face a multitude of losses and gains that intricately impact our lifelong development. Adult life-span development represents a time of compounding losses, such as physical, sensory, and cognitive declines (for reviews, see e.g., Birren & Schaie, 2006; Craik & Salthouse, 2008), but also a time of notable growth, such as improvements in well-being and emotion regulation (see Carstensen, Mikels, & Mather, 2006; Charles & Carstensen, 2010; Scheibe & Carstensen, 2010). These divergent trajectories are somewhat paradoxical; in the face of accumulating losses, how is it that we actually feel better and experience greater well-being?

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Various theories have been proposed that address this paradox of aging with different considerations and foci (see Table 1). The perspectives span the psychological spectrum from considerations of cognitive changes to motivational and social changes that influence adult development. In this article, we trace current perspectives stemming from the fundamental theories that have guided researchers for several decades. We highlight the foundational theories that have evolved in light of new findings, and we show how they have given rise to the growth of new theoretical perspectives. As such, we provide a review of these contemporary perspectives and their empirical support and consider future directions in the study of emotional development in adulthood.

Historically, given the many losses associated with advancing age, emotional aging was considered to be a period of deterioration (Banham, 1951). However, empirical findings began to paint a different picture: emotion regulation and emotional experience in later life were found to be as good if not better than in younger years. With regard to life satisfaction, studies indicated that in the face of age-related declines in various domains, well-being remained stable and relatively high through middle age and into later life (for a review, see Diener, Suh, Lucas, & Smith, 1999). Similar patterns were observed for trajectories of positive and negative emotional experiences (herein, we will refer to general emotional experiences as “affect,” as is used in our field of study). Older adults report lower levels of negative affect and relatively stable levels of positive affect relative to younger adults (Carstensen, Pasupathi, Mayr, & Nesselrode, 2000; Carstensen et al., 2010; Charles, Reynolds, & Gatz, 2001; Mroczek & Kolarz, 1998). Moreover, results are not limited to immediate affective states. They also are found at the level of dispositional emotions. Large-scale longitudinal studies and comprehensive meta-analyses have documented age-related increases in emotional stability and decreases in the propensity to experience negative emotions (Roberts, Walton, & Viechtbauer, 2006; Terracciano, McCrae, Brant, & Costa, 2005). These amassing findings necessitated explanations beyond the default deterioration perspective. How is it possible to understand adult life-span development as a time of not only losses but also gains?

Table 1. Theoretical Models of Adult Emotional Development

Theory/Model	Abbreviation	Themes	Core Affective Contribution
Selective optimization with compensation (Baltes, 1997)	SOC	Losses, Motivation	Compensation leads to greater emotional well-being for older adults.
Selective optimization with compensation with emotion regulation (Urry & Gross, 2010)	SOC-ER	Losses, Motivation	Using optimal emotion regulation strategies leads to greater emotional well-being.

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Dynamic integration theory (Labouvie-Vief, 2003)	DIT	Losses, Cognition	Age-related cognitive decline leads to great positivity in later life.
Motivational theory of life-span development (Heckhausen et al., 2010)	MTL	Control, Motivation	Increases in secondary control for older adults lead to greater emotional well-being.
Discrete emotion theory of affective aging (Kunzmann et al., 2014)	DEA	Integrative	Different adaptive functions of discrete emotions lead to age differences in emotional experience.
Socioemotional selectivity theory (Carstensen, 2006)	SST	Social, Motivational	Age-related changes in goals lead to age differences in emotional experience.
Strength and vulnerability integration theory (Charles, 2010)	SAVI	Integrative	The balance of age-related strengths and vulnerabilities lead to age differences in emotional experience.
Appraisal approach to aging and emotion (Young & Mikels, 2018)	AAAE	Integrative	Age differences in appraisal processes lead to age differences in emotional experience.

Theoretical Perspectives on Emotion and Aging

Losses and Motivation: Compensating for Losses to Achieve Emotional Well-Being

Baltes and Baltes (1990) developed a model of life-span development that focuses directly on the balance of losses and gains. Selective optimization with compensation (SOC; Baltes & Baltes, 1990; Baltes, 1997) considers how age-related losses in various areas of functioning can lead individuals to be more selective in their goal pursuit, and optimize personally relevant goals while employing compensatory strategies. In the face of age-related declines, this model proposes that older adults select important domains of functioning and focus their goals in those domains. Once these goals are set, individuals strive toward those goals selectively. However, if declining resources impede optimization, they will compensate with alternative strategies. From this perspective, successful functioning and emotional well-being can be maintained despite compounding losses. In an extension of this model (selective optimization and compensation with emotion regulation, SOC-ER), Urry and Gross (2010) have proposed that in advanced age, individuals selectively engage in regulatory strategies that draw on resources that are well preserved with age. They propose that whereas younger adults may more optimally use cognitive reappraisal strategies, older adults are more likely to use strategies that are preemptive, such as situation selection and distraction. Recent evidence shows that older adults chose distraction over reappraisal, which leads to great emotional well-being (Scheibe, Sheppes, & Staudinger, 2015). Building from such work, Isaacowitz, Livingstone, and Castro (2017) posit that older adults have difficulty with complex emotion regulation strategies and situations. Ultimately, SOC-ER predicts that older adults achieve improvements in well-being relative to younger adults as a function of optimizing emotion regulation strategies.

It is important to note that the balance of losses and gains changes across the life span, such that losses become more predominant over gains in later life relative to earlier parts of the life span (Baltes & Smith, 2003; Heckhausen, Dixon, & Baltes, 1989). Freund and Ebner (2005) have proposed that a life-span shift in motivational orientation occurs from a focus on gains in youth to a focus on loss prevention in later life. In young adulthood, developmental tasks focus on accruing gains, such as intellectual growth through education, financial growth by establishing a career, as well as social growth through creating a family. In later life, goals focus on avoiding losses, such as maintaining an active and engaged life while dealing with the multitude of declines. From this perspective, older adults would thus orient their goals toward avoiding losses, making negative emotional experiences and information more salient. As a natural extension, older adults would then become more adept at regulating negative emotions, which in turn would lead to greater emotional well-being (Depping & Freund, 2011).

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In sum, the theoretical perspectives that focus on age-related losses aptly explain increases in emotional well-being through emotion regulatory strategies that optimize emotional experience. However, elaborate strategies are resource intensive. Given the cognitive declines that older adults face, to what extent do these strategies rely on cognitive resources?

Losses and Cognition: The Relationship of Cognitive Decline to Affective Optimization

Labouvie-Vief's dynamic integration theory (DIT; Labouvie-Vief, 2003; Labouvie-Vief, Grünh, & Studer, 2010) proposes that emotional and cognitive functioning are inextricably linked. According to DIT, positive emotional development reflects a dynamic balance between optimization (i.e., an emphasis on positive emotional experiences) and differentiation (i.e., the ability to grapple with mixed emotions to maintain a realistic view of the world and the self). Differentiation involves integrating emotions with previous experiences and the emotions of other people, a cognitively demanding endeavor that leads to emotional complexity. As a result of age-related cognitive decline, older adults should show greater positive affective optimization and less emotional complexity. Recent findings examining affect variability between younger and older adults support this premise of DIT (Brose, de Roover, Ceulemans, & Kuppens, 2015). However, other research has found age-related increases in mixed emotions (see e.g., Schneider & Stone, 2015). Regardless, research on emotional complexity and mixed emotions has not directly investigated the role of cognitive decline.

From another perspective, evidence suggests that age-related changes toward positivity are associated with better, not worse, cognitive functioning. Mather and Knight (2005) found that older adults who better remember positive material also scored higher on a measure of cognitive control. Moreover, in divided attention tasks, in which cognitive resources are occupied by a competing task, older adults do not show a preference for positive material (Mather & Knight, 2005), or even a focus on the negative (Knight, Seymour, Gaunt, Baker, Nesmith, & Mather, 2007). As such, it appears that age-related shifts in emotional processes may indeed require cognitive resources. Thus, perspectives considering the role of cognition in emotional experience show that cognition is part and parcel of adult life-span development. This point will be revisited later in the context of information processing differences that result from socioemotional changes.

Control and Motivation: The Role of Primary and Secondary Control in Emotional Well-Being

Dovetailing with SOC, the motivational theory of life-span development (MTL; Heckhausen, Wrosch, & Schulz, 2010) considers how age differences in control may influence emotional experience. MTL contends that primary control, the ability to exert active control over one's physical and social environment, peaks in midlife and declines in

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old age. In contrast, secondary control mechanisms aimed at emotion regulation and goal adjustment are thought to improve in later life. As a result of age-related declines, older adults experience a reduced ability to exert direct control over their environment relative to younger adults (Heckhausen & Schulz, 1995).

However, MTL suggests that older adults utilize different control strategies relative to younger adults due to changing goals and opportunities that come with advanced age. According to this theory, primary control processes are preferred across the life span, but when primary control fails, secondary control can be utilized to maintain or minimize losses in primary control. Secondary control can function to compensate for losses in primary control through self-regulation (e.g., managing goals, emotion regulation) and managing the deployment of primary control. Although younger and middle-aged adults can regularly deploy primary control successfully, the losses in physical ability that older adults experience reduce their ability to exert primary control. However, older adults may increase their use of secondary control to compensate for their loss of primary control (Heckhausen & Schulz, 1995; Heckhausen et al., 2010).

Evidence supporting the compensatory role of secondary control suggests that although older adults experience many declines that reduce their ability to exert primary control, they report greater secondary control relative to younger adults (Heckhausen, 1997; Schulz, Heckhausen, & O'Brien, 1994). Moreover, these increases in secondary control are related to higher levels of emotional well-being (Wrosch, Heckhausen, & Lachman, 2000). Overall, these findings suggest that adult age differences in emotional well-being are related to developmental patterns in control processes.

At its core, MTL is grounded in the appraisal of personal of control. Younger and middle-aged adults are more likely to appraise greater direct personal control over the environment, whereas older adults are more likely to appraise greater control when they are able to exert an indirect influence on the environment via self-regulation in an effort to manage situational demands. Both primary and secondary control strategies are ways to change the environment, but they do so in meaningfully different ways that are based upon what is adaptive to a particular stage in life-span development. Research supports this idea; older adults tend to be better than younger adults at managing their social situations (Luong & Charles, 2014), at utilizing emotion regulation strategies such as conflict avoidance and distraction (Charles, Piazza, Luong, & Almeida, 2009; Folkman, Lazarus, Pimley, & Novacek, 1987; Scheibe et al., 2015), and at using positive reappraisal (Shiota & Levenson, 2009). The ways that older adults utilize control reflects that they see their responses as changeable and an indirect influence on their environment. In contrast, young adults may have a harder time appraising control in this way due to their preference for primary control and a reduced need to utilize secondary control to maintain a sense of control over the environment. In sum, MTL specifies how older versus younger adults adapt to environmental demands.

Social and Motivational Changes: The Role of Social Selectivity in Influencing Goals and Emotional Experience

One of the most influential explanations for age-related changes in emotional experience is socioemotional selectivity theory (SST; Carstensen, 1993, 2006), a life-span theory of motivation. The theory has been extensively utilized in the field due to its predictive power and generative extensions. SST emphasizes age-associated changes in future time horizons and their implications for motivational priorities and emotional experience (Carstensen, 2006; Carstensen, Isaacowitz, & Charles, 1999). Specifically, the theory proposes that when future time horizons are perceived as expansive, as is typical in youth, individuals prioritize future oriented goals such as information acquisition and the development of extended social networks. As time horizons narrow and one's future time is perceived as more limited, as is typical in older age, individuals focus on goals that are relevant to the present moment. This motivational shift is thought to lead to a prioritization of positively valenced and emotionally meaningful experiences in social interactions and beyond.

In the social domain, social influences have been shown to have a remarkable influence on emotional well-being. For instance, perceived social support and a strong social network are important predictors of mental and physical well-being (Stephens, Alpass, Towers, & Stevenson, 2011). Consistent with SST, findings indicate that older individuals restructure their social contacts to create close networks of familiar social partners that are conducive to emotionally meaningful and positive interactions (Carstensen, 2006; Carstensen, Isaacowitz, & Charles, 1999; English & Carstensen, 2014). In studies on social partner preferences, older adults have been found to prefer close and familiar social partners over novel social partners (Fredrickson & Carstensen, 1990; Fung & Carstensen, 2004; Fung, Carstensen, & Lutz, 1999). Also, older adults' social networks are generally smaller and contain relatively more close social partners than those of younger adults (Lang & Carstensen, 2002). Importantly, age differences in network characteristics appear to be due to a process of active pruning as opposed to passive loss; in a longitudinal study of older adults' social networks, perceived closeness to death was associated with a deliberate discontinuation of peripheral social relationships whereas relationships to close relatives and life partners were selectively strengthened (Lang, 2000).

Older adults are not only selective about their social networks, but also about the types of interactions they engage in. When asked to develop solutions for hypothetical problem scenarios, older adults are more likely to avoid interpersonal conflicts than their younger counterparts (Blanchard-Fields, Jahnke, & Camp, 1995; Blanchard-Fields, 2007). In the same vein, daily diary and dyadic interaction research examining exposure and reactivity to interpersonal tensions found that older adults used more avoidant and less confrontational strategies than their younger counterparts resulting in more positive emotions (Birditt & Fingerman, 2005; Birditt, Fingerman, & Almeida, 2005; Lefkowitz & Fingerman, 2003). In concrete terms, whereas younger adults are more likely to actively

exit confrontations or raise their voices, older adults are more likely to simply “do nothing” (Birditt & Fingerman, 2005). When avoidant strategies are not possible, older adults appear to actively infuse the situation with positive affect. In studies in which couples were asked to discuss a topic of mutual conflict, older as compared to middle-aged couples were more likely to express affection or temporarily switch to a more favorable topic (Carstensen, Gottman, & Levenson, 1995; Levenson, Carstensen, & Gottman, 1994). Consistent with an age-related emphasis on motivation toward positivity, age differences in interpersonal strategies appear to benefit emotional well-being. Older adults with small and close social networks report lower interpersonal strain (Lang & Carstensen, 2002), and older adults’ use of avoidant strategies is associated with lower interpersonal tension and greater relationship satisfaction (Birditt & Fingerman, 2005; Birditt, Fingerman, & Almeida, 2005; Lefkowitz & Fingerman, 2003). In general, advanced age is associated with better marriages, greater perceived social support, and less interpersonal conflict relative to younger adults (Fingerman & Charles, 2010).

Beyond social contexts, older adults also differ in their attention to and memory for positive relative to negative material. Across numerous psychological domains, a robust cognitive processing bias toward negative material has been observed among younger adults (for reviews, see Baumeister, Bratslavsky, Finkenauer, & Vohs, 2001; Rozin & Royzman, 2001). The *negativity bias*, though, does not extend across the entire life span (Carstensen & DeLiema, 2018; Carstensen & Mikels, 2005). Instead, the allocation of processing resources appears to shift with age toward positive relative to negative information, which has been termed the age-related positivity effect (Carstensen & DeLiema, 2018; Carstensen, Mikels, & Mather, 2006; Carstensen & Mikels, 2005; Mather & Carstensen, 2005).

The positivity effect has been observed across a wide range of methods and stimulus types. In studies examining age differences in attentional deployment, an age-related focus toward positive and/or away from negative material has been observed (Allard & Isaacowitz, 2008; Knight et al., 2007; Bannerman & Regner, 2011; Isaacowitz & Choi, 2011; Isaacowitz, Wadlinger, Goren, & Wilson, 2006A, 2006B; Mather & Carstensen, 2003). The positivity effect is also evident in working memory (Mikels, Larkin, Reuter-Lorenz, & Carstensen, 2005), memory for emotionally salient scenes, facial expressions, and words (Charles, Mather, & Carstensen, 2003; Chung, 2010; Grady, Hongwanishkul, Keightley, Lee, & Hasher, 2007; Kensinger, 2008; Langeslag & van Strien, 2009; Spaniol, Voss, & Grady, 2008; although see, e.g., Denburg, Buchanan, Tranel, & Adolphs, 2003; Gröhn, Smith, & Baltes, 2005), as well as autobiographical memory (Kennedy, Mather, & Cartensen, 2004; Schlagman, Schulz, & Kvavilashvili, 2006; Ready, Weinberger, & Jones, 2007), and false memory (Fernandes et al., 2008). These findings are highly consistent as indicated by a meta-analysis showing that the positivity effect is indeed reliable and robust in information processing (Reed, Chan, & Mikels, 2014). Corresponding patterns emerge at the neural level. Specifically, neural reactivity to negative stimuli appears to be lower among older adults, whereas reactivity to positive stimuli does not change with

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age. Convergent evidence for such effects comes from electroencephalography studies examining event related potentials (Kisley, Wood, & Burrows, 2007) as well as fMRI studies examining the activation of subcortical emotional circuits including the amygdala (Mather et al., 2004). But what function does the positivity effect serve?

It is possible that the positivity effect serves an emotion-regulatory function. In support of this notion, older adults spend more time looking at positive stimuli after a negative mood induction, whereas younger adults look more at negative, mood-congruent stimuli (Isaacowitz, Toner, Goren, & Wilson, 2008). Looking toward positive and away from negative stimuli leads to more positive moods—but only for older adults with higher levels of attentional functioning (Isaacowitz, Toner, & Neupert, 2009). In fact, attentional deployment may be a particularly effective emotion-regulatory strategy for older adults. When focusing attention away from a negative film clip and toward positive memories, older adults showed a larger drop in negative emotions than their younger counterparts (Phillips, Henry, Hosie, & Milne, 2008). In sum, there is consistent support for the view that the positivity effect represents a form of motivated cognition driven by age-related shifts toward emotion-regulatory strategies that optimize positivity. So, clearly there are important gains in later life. However, what about the prominent losses emphasized in the other theories?

Integrative Perspectives: Building Upon the Foundational Theories of Emotion and Aging

In an effort to integrate existing theories into a broader theoretical framework, Charles's strength and vulnerability integration theory (SAVI; Charles, 2010) proposes that from an emotion-regulatory point of view, aging is associated with both strengths (e.g., life experience, shifts in time horizons and goal priorities) and weaknesses (i.e., reduced physiological flexibility). This theory further contends that older adults fare better in situations modifiable with attentional strategies, reappraisal, or situation selection, but respond less favorably to situations involving sustained negative arousal. This perspective incorporates the age-related positivity effect described above (Carstensen & Mikels, 2005).

However, late life is also characterized by weaknesses (e.g., reduced physiological flexibility and cognitive decline; see Almeida, Piazza, Stawski, & Klein, 2011; Charles, 2010). Despite the existence of motivation to maintain affective well-being in older adulthood, circumstances outside of the norm may result in differential outcomes. Unavoidable stressors, for instance, might interrupt older adults' abilities to modify appraisals of a particular situation (Charles, 2010). Moreover, situations in which the performance of older adults may confirm negative age-based stereotypes (e.g., problems with memory and cognition) lead to poorer performance relative to when such negative stereotypes are not activated (Chasteen, Kang, & Remedios, 2012). Exposure to stressors

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characterized by high levels of physiological arousal may supersede emotion regulation strategies in advanced age (Almeida, Piazza, Stawski, & Klein, 2011; Charles, 2010). Specifically, according to SAVI, in situations in which people experience high levels of distress, age differences that normally favor older adults in the use of emotion regulation will be attenuated, and the physiological consequences of sustained emotional arousal will be more costly for older adults. Thus, stressors that make cognitive vulnerabilities more salient may be especially problematic for older adults and undermine emotion regulation. As such, SAVI elegantly integrates theoretical perspectives that focus on losses with other theories that focus on gains. But from what specific strengths do older adults benefit?

SAVI suggests that due to diminished temporal horizons (as proposed by socioemotional selectivity theory, SST), older adults will appraise situations differently than younger adults due a more present rather than a future focused awareness and a priority on socially and emotionally focused goals (Carstensen, Isaacowitz, & Charles, 1999; Charles, 2010). Supporting this tenet, it appears that the appraisal processes that older adults employ constitute a strength associated with aging. Research indicates that older adults are more likely to appraise situations more positively relative to younger adults (for a review, see Charles & Carstensen, 2010). Older adults tend to make appraisals that are less negative and appraise negative emotional experiences such as stressors as less severe (Charles & Almeida, 2007). Moreover, the way that older adults interpret ambiguous scenarios also support this notion. When asked to continue ambiguous scenarios, evidence suggests that older adults continue scenarios less negatively but with equal positivity (Mikels & Shuster, 2016). Additionally, when evaluating uncertain ambiguous situations, older adults report evaluating the future of those situations as being less negative and overall more positive compared to younger adults (Steinman, Smyth, Bucks, MacLeod, & Teachman, 2013). The evidence for increased positivity in appraisals for older adulthood aligns with findings related to the positivity effect described earlier (Carstensen & Mikels, 2005; Mather & Carstensen, 2005). These strategies represent some of the strengths evident in later life.

Derived from SST, greater emotional well-being in older adulthood is also thought to be a result of social expertise that guides behavior to regulate emotional experience (Charles & Carstensen, 2010). Research supporting SAVI has found that older adults tend to disengage from negative social interactions (Charles et al., 2009), employ strategies that promote positive social experiences, and reduce the likelihood of negative social experiences by avoiding conflict more often than younger adults (Luong & Charles, 2014; Luong, Charles, & Fingerhman, 2011). Considering that interpersonal stressors are the most commonly experienced type of stressor (Almeida, 2005), the improved ability to manage these types of negative experiences with behavioral strategies is important for older adults to maintain emotional well-being.

A common thread through SAVI and the other theories is appraisal. Appraisal theories of emotion describe how specific motivation-directed evaluations shape emotional experience (Ellsworth, 2013). According to these theories, “appraisal” is the central

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process that differentiates emotional experience (Moors, Ellsworth, Scherer, & Frijda, 2013). Appraisal is an evaluative process that assesses the environment (both internal and external) for significance to the individual's well-being (Moors et al., 2013). Appraisal processes evaluate the environment for information such as goal congruity, self- versus other-responsibility, certainty, and so forth (see Ellsworth, 2013; Moors et al., 2013). Simply put, the environment is evaluated for meaning in relation to an individual's goals (Frijda, 2007; Lazarus, 1991; Scherer, 2013). When meaning is found in the environment, evaluations are made and an emotional experience is elicited as an adaptive response to the information gathered from the environment. From an emotion theory perspective, appraisal is the core component of the emotion process, and appraisals specify how emotional experiences arise. Such fundamental processes may change across the adult life span.

Evidence supports the notion that appraisal processes may differ for younger and older adults. For instance, findings suggest that the appraisal of goal congruity and valence differ between younger and older adults (Charles, 2010). Studies have shown that when comparing one's actual-self to an ideal- or goal-self, younger and older adults differ in their discrepancy between actual- and ideal-selves. Scheibe, English, Tsai, and Carstensen (2013) found that older adults had little discrepancy between their ideal- and actual-self in terms of the amount of positive emotions they felt and wanted to feel relative to younger adults. This finding suggests that older adults' current state was more congruent to their goal state compared to younger adults.

Despite these findings, there is still much to be understood about how appraisal processes contribute to changes in emotional experience in later life. We contend that age differences in emotional experience between younger and older adults are due to differences in appraisal processes. Most research heretofore has focused on appraisals of positivity versus negativity. To advance the study of emotional life-span development, we propose that better integration with emotion theories proper is necessary. Here, we propose an appraisal approach to aging and emotion (AAAE). AAAE considers how appraisal variables (e.g., control) may differ for older versus younger adults and can provide direction to guide research that seeks to understand emotional development across adulthood. Age differences in appraisal variables could be the affective mechanism underlying age-related positivity. Many appraisal variables have yet to be investigated across the adult life span. The full consideration of multiple appraisal dimensions is considered in another theoretical piece (Young & Mikels, in preparation). Here, though, we will consider two appraisal dimension: control and certainty.

AAAE draws from the motivational theory of life-span development (MTL) in suggesting that the amount of personal control over the environment a person has peaks in midlife and then decreases through older adulthood (Heckhausen & Schulz, 1995). This difference in control across the life span may contribute to differences in emotional experience between younger, middle-aged, and older adults. In young adulthood and midlife, primary control strategies that involve direct control over the environment can be deployed regularly (Heckhausen et al., 2010). Consistently, SAVI proposes that older

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adults utilize secondary control strategies, such as emotion regulation and conflict avoidance to optimize positivity (Charles, 2010). Considering that older adults report experiencing greater emotional well-being relative to younger adults, it seems as though these shifts in primary and secondary control are related to improvements in emotional well-being. Specifically, it appears that a focus on secondary control may lead older adults to more positive emotional experiences compared to younger adults.

Importantly, there may be other control-related explanations for this shift in emotional experience across the life span. AAAE proposes that appraisal processes are the affective mechanism that differentiates emotional experience between older and younger adults. As SST posits, older adults prioritize social and emotional goals more than younger adults. This change in goal priority may lead older adults to evaluate the environment in terms of control differently than younger adults. To explore age differences in appraisals of control and emotional experience, Young and Mikels (2018) examined how younger and older adults appraise control in ambiguous scenarios and how appraisals of control contribute to differences in emotional experience. Overall, the results of the study indicate that older adults on average appraise less other-control and circumstantial control compared to younger adults. Furthermore, we found that different appraisals of control contribute to emotional experience between younger and older adults. For older adults, the appraisal of other-control predicted increased positive emotional experience, whereas for younger adults the appraisal of self-control predicted increased positive emotional experience.

Another appraisal variable that may explain age differences in emotional experience is certainty. SST posits that the goals of younger adults focus on the future in order to deal with uncertain future challenges. In contrast, older adults prioritize social and emotional goals in the present moment that are more certain. According to AAAE, younger adults may therefore be more sensitive to the detection of uncertainty because their goals deal with unforeseen events. Consequently, younger adults may appraise ambiguous future events as more uncertain relative to older adults, which in turn may lead younger adults to experience greater negativity or less positivity regarding future events. In support of this postulate of AAAE, research has shown that older adults are more likely than younger adults to see the uncertain future as potentially positive (Steinman, Smyth, Bucks, MacLeod, & Teachman, 2013). Such an age difference in appraisals of the future could underlie findings indicating that younger adults experience more anxiety and depression compared to older adults generally (Kessler et al., 2005; Piazza & Charles, 2006). Increased appraised uncertainty and increased negativity in younger adulthood—compared to older adulthood—may at least partially explain current known age differences in emotional experience. As proposed by AAAE, research investigating the developmental patterns of appraisal dimensions in relation to the development and shifts in goals across the life span can help to clarify the contribution of appraisal to differences in emotional experience across the life span.

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In the same spirit of integrating existing theories of emotion and aging into a broader theoretical framework, the discrete emotion theory of affective aging (DEA) integrates SOC, MTL, and SST with basic emotion theory. DEA contends that discrete emotions (e.g., anger versus sadness) serve different evolutionarily adaptive functions across the life span (Kunzmann, Kappes, & Wrosch, 2014). As such, DEA focuses on the functions of discrete emotions that may vary with age, with a focus on how one exerts control to achieve goals. For instance, anger may be more adaptive functionally in young adulthood in order to achieve challenging but attainable goals. In contrast, sadness may be more adaptive in older age to adjust to losses and unattained goals. DEA contends that there are likely age differences in anger and sadness, such that anger is more prominent in younger adulthood and sadness is more prominent in later life. DEA is strongly supported by findings demonstrating age-related reductions in anger (Lawton, Kleban, Rajagopal, & Dean, 1992; Magai, 1999), but stable or increased levels of sadness in later life (Tsai, Levenson, & Carstensen, 2000; Kunzmann & Grühn, 2005). Moreover, Wrosch, Barlow, and Kunzmann (2018) recently found that age-related increases in sadness were related to decreases in personal control, as would be predicted by MTL. Thus, drawing from a basic and discrete emotion perspective, DEA offers a more integrative view on the adaptive function of emotions as they may change across the adult life span.

In sum, these three integrative perspectives promise to advance the field's understanding of emotion and aging. SAVI considers motivational changes that may lead to greater emotional well-being within the context of losses and gains accrued across the life span. AAAE and DEA consider how theories of emotion and aging can be integrated with emotion theory proper and appraisal theory and basic emotion theory, respectively. These new directions dig deep into mechanistic explanations and underscore the need for greater theoretical integration.

Future Directions for Theories of Emotion and Aging

The foundational theories that have offered explanations for adult age differences in emotional experience provide the bedrock for a better understanding of emotional development. However, we contend that it is imperative to weave these life-span theories in the larger purview of emotion theory more broadly. Moreover, it is vitally important to emphasize interweaving connections rather than differences. As such, we have two major future thinking perspectives: (1) integrating adult life-span theories within the broader context of emotion theories and (2) extending adult life-span theories to include multiple interdisciplinary perspectives.

General emotion theories are preoccupied with the mechanisms that lead to emotional experiences. These span from evolutionary and biologically based theories (Ekman, Friesen, & Ellsworth, 2013) to constructivist perspectives (Ellsworth, 2013; Barrett,

2006). Despite seemingly conflicting angles, there is a great deal of overlap that must be considered across the adult life span. Although AAAE approaches emotional life-span development from an appraisal theory angle, DEA draws from the basic and discrete emotion approach. These new directions highlight an increasing interest in integrating the life-span theories with more general emotion theories. However, there are other emotion theories that could benefit from life-span considerations. For instance, the conceptual-act model (Barrett, 2006) posits that emotions are constructed by applying conceptual knowledge to core affect (i.e., the subjective hedonic feeling). Given age-related cognitive decline but increased experience with advanced age, older adults may construct emotions differently than their younger counterparts. Such considerations could also help advance theories on emotion and aging, while also advancing emotion theory broadly. There is great strength in such approaches, as they are integrative in a manner that holds promise not to only better understand adult life-span development, but also shed light on the fundamental mechanisms that give rise to emotions.

From a different vantage point, contemporary theories of emotion and aging also appear to be integrative in an interdisciplinary direction. For instance, SAVI draws from a broad array of disciplines beyond psychology and incorporates considerations of physiological decline drawing from neurology, endocrinology, and immunology. Taking into account a broader array of scientific domains holds great promise in advancing our understanding of emotional development across the adult life span. Theories should consider physiological and biological factors as well as sociological and ecological factors. Such an approach would allow theories of emotion and aging to connect with public health, law, and social work.

Ultimately, theories that address emotional development across the adult life span provide a road map toward a fulfilling life. There is much still to understand, but current directions that have arisen from the foundational perspectives promise to enhance our common goals of understanding emotional processes. The balance of strengths and vulnerabilities in human aging determine how bright one's future will be, and theories of emotion and aging can provide insight into how to best achieve all that is possible.

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