

From Adolescence to Old Age: Developmental Perspectives on the Extended Process Model of Emotion Regulation

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James Gross opens his target article with the observation that a lively interest in emotion regulation has spread through many sub-disciplines within psychology during the past decade. A broadly applicable theoretical framework of emotion regulation would therefore be valuable, as it would facilitate the communication, integration, and synergistic effects of the many diverse (and sometimes disparate) research activities within and across sub-areas. In our commentary, we will provide a developmental perspective, specifically targeting the life period from adolescence to late adulthood, on the potential of the extended process model of emotion regulation to serve as such a common theoretical scaffold. After briefly summarizing relevant findings in the emotional development literature, we will discuss how the available evidence on age-related differences from youth to old age may fit into the extended process model of emotion regulation. In so doing, we will explore how the model may be used as a framework for stipulating and organizing future research activities on the many unanswered questions in the emotional development literature, and point to additional growth areas that a unifying theoretical framework of emotion regulation would ideally address from the viewpoint of developmental psychologists. Specifically, a developmental perspective calls attention to the importance (a) of understanding factors that contribute to individual differences in emotion regulation processes and (b) of defining the outcomes of emotion regulation, that is, of agreeing upon a set of criteria that indicate how helpful or harmful given regulatory attempts (in given contexts) are for the individuals' short-term and long-term development. For example, how and why do individuals of various age groups differ in their emotion regulation goals and strategies? How can we evaluate the short-term effectiveness and long-term adaptiveness of emotion regulatory efforts in different age

groups? Such a perspective can help obtain a better understanding of the general question of individual differences in emotion regulation.

Emotional Experience and Regulation from Adolescence to Old Age: Some Key

Findings

Just as typical emotional experiences may differ *between* people, with some individuals being more ecstatic or grumpy than others on average, emotional experiences can also vary *within* persons in myriad ways. Within-person variations in emotions can be tied to the situational contexts, for example, when a person is more relaxed on certain occasions (e.g., during vacations) compared to others (e.g., at work). Moreover, such within-person variation can also unfold across longer periods of time, such as over days, weeks, months, or even years as he or she gets older. Indeed, it is well-established in the developmental literature that everyday emotional experiences differ profoundly between individuals from different age groups (for a review, see Riediger & Rauers, 2014). Adolescents, for example, typically report everyday emotional experiences that are more variable and involve more negative emotionality than adults (e.g., Riediger & Klipker, 2014). Throughout adulthood, noticeable differences in emotional experiences have also been observed. Healthy older adults (at least into young-old age, that is, into the sixth and seventh decades of life) typically report more positive and more stable everyday emotional lives than younger and middle-aged adults (e.g., Carstensen et al., 2011), and this relatively positive emotional well-being seems to decline only towards the very end of life in the years preceding death (e.g., Gerstorf et al., 2010). These findings regarding more positive emotional profiles in older age were unexpected at first and even regarded as a paradox (Kunzmann, Little, & Smith, 2000) as they stood in stark contrast to the well-documented aging-related deterioration in other functional domains, such as in cognitive or physical capacities, some of which begin declining as early

as the second and third decades of life (e.g., Ferrari, Radaelli, & Centola, 2003; Salthouse, 2009).

Developmental scientists have postulated that emotion regulation may be one primary mechanism underlying these age-related differences in emotional experiences. Emotion regulation itself is a target of developmental change, as mentioned in Gross' target article: The ability to regulate emotional states is only rudimentarily elaborated in infancy, subject to profound qualitative and quantitative development in the subsequent years, and can be further refined throughout (most of) the individual's lifetime as individuals acquire more experience and practice utilizing various emotion regulation strategies. In addition, people in different life phases vary in their motivation to regulate emotional experiences, especially with respect to the kinds of emotional experiences they want to have (e.g., Carstensen, Fung, & Charles, 2003; Riediger, Schmiedek, Wagner, & Lindenberger, 2009; Scheibe, English, Tsai, & Carstensen, 2013). Together, researchers have suggested that age-related differences in both emotion regulation skills and motivations contribute to age-related differences in emotional experiences in daily life (e.g., Carstensen et al., 2003; Charles & Luong, 2013). Even though some empirical evidence is in line with this claim (explained in more detail below), a coherent story has not yet emerged in the literature. We believe that the extended process model of emotion regulation can help with this aim. Below, we will show that the model provides a suitable framework for integrating the available empirical evidence and for pointing to areas that require further investigation. We also believe that some of the developmental findings that we will review below could potentially contribute back to the theory, by drawing attention to aspects that might also be relevant for the phenomenon of emotion regulation more generally.

A Developmental Perspective on the Extended Process Model of Emotion Regulation

The extended process model proposes that emotion regulation unfolds as a dynamic process that involves repetitions of three inter-related cycles of higher-order valuations over time: identification, selection, and implementation. We take a developmental perspective to comment on each of these stages in turn.

Thoughts on the identification stage. The model proposes that in the identification stage, a person's given emotional state (which is an output of a first-level valuation system) serves as the input. In this second-level valuation system, the individual (consciously or unconsciously) values the perception of this emotional state by comparing it to a reference standard that is desirable in the given situation. The size and direction of the discrepancy between the perceived state (e.g., one's momentary anger) and the reference standard (e.g., the target levels of anger state in the momentary situation) determine the individual's regulation motivation. If the discrepancy is below a critical threshold, no motivation to regulate the emotion arises (or previous regulation attempts are terminated). Regulation goals of adjusting the emotional state towards the reference standard are enacted when the discrepancy exceeds this critical threshold.

In light of this conceptualization, one rich area in the emotional development literature can be characterized as investigating individual differences in the components of the identification stage. For example, many studies have focused on age-related differences in motivations for emotion regulation (i.e., the outcome of the identification stage). These studies have investigated both *whether or not* people want to regulate their emotions and *how* people want to feel (i.e., the direction of the emotion regulation motivation, such as whether to enhance or dampen current emotional states). For example, developmental theorists have posited that as individuals age, their future time perspective diminishes and as a result, goal priorities shift to a greater focus on emotionally meaningful and relevant goals (Carstensen, 2006). It has been suggested that these emotion regulation goals are chronically activated such

that older adults are more likely to attend to and remember a larger proportion of positive relative to negative emotional information, compared to younger individuals (Reed & Carstensen, 2012). Here, the extended process model of emotion regulation may facilitate communication between researchers by providing a “common language” to help label the sub-stage(s) where these age differences may emerge and their downstream emotional consequences. For example, are older adults’ perceptions of their (emotional) worlds (sub-stage P) qualitatively different from those of younger individuals, given that they may be more likely to attend to other types of emotional stimuli? Do such chronically activated emotion goals contribute to age-related differences in the reference (target) states that serve as valuation standards (sub-stage V)? Do people from different age groups differ in how vigilantly they monitor discrepancies between their perceptions of the world (sub-stage P; e.g., that they are nervous) and their valuations (sub-stage V; e.g., that being nervous is unhelpful)? And do they differ in the discrepancy threshold between perceived and target states that they tolerate? If so, are individuals from different age groups likely to come to different decisions regarding whether to regulate their emotions (sub-stage A)?

Another research area of great interest to developmental psychologists concerns age-related differences in emotion regulation goals of *how* people want to feel (e.g., how intensely or frequently people want to feel particular emotions; the types of emotional states people want to experience). In Figure 5 of the target article, Gross distinguishes four types of such emotion regulation motivation, namely, to decrease (i.e., dampen) or to increase (i.e., enhance) either positive or negative emotions. Findings from developmental research suggest that it might be informative to consider other types of regulation goals as well. For example, people can occasionally be motivated to *maintain* (rather than to decrease or increase) a given emotional experience, that is, to counter-regulate its *anticipated* trajectory (i.e., the rise or fall of its intensity over time). In other words, emotion regulation goals might, in our view, arise

from situations where no (or negligible) discrepancy between the current and the reference state is momentarily perceived, but is expected to occur in the future.¹

We emphasize the possible differentiation of emotion regulation motivation directed towards maintaining versus increasing versus decreasing emotional experiences because empirical evidence suggests that this may help elucidate developmental patterns in emotion regulation motivation. Various studies, for example, demonstrate age-related shifts in overarching motivational orientations that involve (among other things) a reduction throughout adulthood in the motivation to improve, but greater motivation to maintain, momentary states (e.g., Ebner, Freund, & Baltes, 2006; Freund, Hennecke, & Mustafic, 2012). Similar age-graded patterns in maintenance motivations have been found in the Multi-Method Ambulatory Assessment (MMAA) project with regard to the motivation to regulate positive (but not negative) emotional states. We initiated the MMAA project to investigate age-related changes in the confluence of motivational and regulatory processes on everyday affective experiences. Participants ranging from adolescents to older adults carried mobile-phones around with them during their normal daily routines and were signaled at random intervals throughout the day to complete surveys regarding their current affective experiences and emotion regulatory goals. For several positive (e.g., joyful, content) and negative (e.g., angry, downhearted) emotions, participants reported their momentary motivations to (a) dampen, (b) enhance, (c) maintain, or (d) not at all influence their respective feelings (see Riediger et al., 2009). We found age differences in the reported emotion regulation goals; not only with regard to goals directed at dampening (i.e., decreasing) or enhancing (i.e., increasing) the intensity of momentary emotions, but also with respect to goals directed at maintaining such states. Given that participants could also endorse not wanting to regulate/influence their current momentary experiences, reports of emotion maintenance goals

indeed represented a unique facet of emotion regulation motivation (as opposed to the mere absence of regulation motivation).

Consistent with findings on age-related differences in overarching motivational orientations, we found that the motivation to maintain momentary positive states was more prevalent with older age. The motivation to further enhance momentary positive emotions, however, was less prevalent the older participants were (as was the motivation to dampen momentary positive emotions). With regard to negative emotions, the motivation to dampen such states was more frequently reported the older participants were, but reports of motivations to maintain and to enhance given negative states were less prevalent with higher age. Overall, there was an age-related reduction in the prevalence of counter-hedonic motivation (of wanting to maintain or enhance negative emotions or to dampen positive emotions). In all age groups, such counter-hedonic motivation was considerably less evident than pro-hedonic motivation (as is to be expected), but adolescents reported counter-hedonic motivation most frequently. Furthermore, older age was associated with an overall greater prevalence of pro-hedonic motivations, which was due to more frequent motivations to maintain positive states and to dampen negative emotions, whereas the pro-hedonic motivation to further enhance momentary positive emotions declined with age (Riediger et al., 2009). Although these findings reveal stark age-related differences in emotion regulation motivation, more research is necessary to fully understand *why* such individual differences exist.

From the extended process model of emotion regulation, one can infer the hypothesis that age-related differences in emotion regulation motivations derive from differences in the reference standards brought into the valuation sub-step (V), to which a perceived momentary state is compared (sub-step P), and/or in the thresholds of discrepancy between perceived states and reference standards (which, according to the extended process model, need to be

exceeded in order for emotion regulation motivation to emerge). We are not aware of any investigations of the latter possibility (which would be a task for future research), but there is some empirical evidence suggesting individual differences in reference standards. It has been shown, for example, that people differ with regard to how desirable (Eid & Diener, 2001) or useful (Tamir & Ford, 2012) they perceive certain affective states to be; how much they like or dislike particular emotions (Harmon-Jones, Harmon-Jones, Amodio, & Gable, 2011), or how they would ideally like to feel (Tsai, 2007). From developmental research, there also is evidence that younger as opposed to older individuals are more likely to value negative affective states, that is, to perceive them as (to some extent) more pleasurable and helpful (Luong, Wrzus, Wagner, & Riediger, 2014), and that they implicitly associate happiness less distinctively with pleasantness, and unhappiness less distinctively with unpleasantness (Riediger, Wrzus, & Wagner, 2014b).

We believe that it is important to identify factors that underlie such individual differences (which may or may not be related to the individual's age) in the reference standards and discrepancy thresholds of the identification stage (which then should lead to differences in emotion regulation motivation). Such influencing factors are not explicitly part of the extended process model. From a developmental perspective, it would be helpful if they were, even though we realize that this would add to the complexity of the model. Gross alludes to two potential reasons for individual differences counter-hedonic motivation in his target article, with one related to the individual's life contexts and the other related to the potential instrumentality of emotional experiences for the individual's goals. In our view, both types of influences may operate in general (and also apply to pro-hedonic motivation). Historical changes in culturally shared norms and expectations of which emotional experiences and expressions are appropriate for whom and in which situations could be among the factors contributing to age-related differences in emotion regulation motivation.

Studies have suggested, for example, that compared to people who are young today, the generation of older adults born in the early twentieth century were socialized to “keep a stiff upper lip” and were discouraged from expressing negative emotions (e.g., Bennett, 2007), whereas for younger people today it has become more socially acceptable to express and share negative experiences (e.g., on social networking platforms, Livingstone & Brake, 2010). This may be one reason why results from the MMAA project showed age-related differences in the prevalence of pro- and counter-hedonic motivations.

It also seems possible that various emotional states and expressions can serve different instrumental functions depending on one’s life stage, irrespective of historical context and cohort effects. Negative affect, for instance, might in some situations help adolescents deal with the developmental tasks of that life phase (e.g., establishing emotional autonomy from parents and other adults or developing self-regulatory abilities, Wrosch & Miller, 2009). In contrast, the instrumental value of positive affect might increase throughout adulthood and into older age because positive affect might be especially important for promoting older adults’ physical health (e.g., Ong, Mroczek, & Riffin, 2011) and facilitating the pursuit of generative and affiliation-related concerns, which gain in subjective importance as people grow older (e.g., Carstensen, 2006). Together, these effects might lead to age-related differences in reference standards in various situations.

Another potentially relevant factor that may be particularly important for explaining the comparatively high prevalence of counter-hedonic motivation in adolescence, pertains to the possibility that emotional episodes can entail a blend of various affective states of opposing valence (e.g., Larsen & McGraw, 2011; Schimmack, 2001). It is plausible that anticipated or actual mixed emotional experiences motivate individuals to enhance or maintain a seemingly negative emotional state because of the positive aspects they associate with it (e.g., when they enjoy being sad), or to dampen an ostensibly positive emotional

experience because it is accompanied by negative feelings (e.g., when they are embarrassed to be proud). Empirical evidence from the MMAA project indeed shows that counter-hedonic motivation is more likely to occur in situations of mixed emotional experience and that adolescents not only report counter-hedonic motivation, but also episodes of mixed emotions, more frequently than adults (Riediger et al., 2009; Riediger et al., 2014b).

Although not an explicit aim of the extended process model, we nevertheless believe the model can contribute to a refined understanding of the phenomenon of mixed emotions. Based on the model, several pathways to such mixed emotional experiences seem possible (and are worthwhile for future empirical exploration). One could assume that emotional experiences might be “inherently” mixed, for example, when fearful suspense while watching a thriller is accompanied by joyful excitement. According to the extended process model, mixed experiences of this type would derive from first-level valuations of the movie content (e.g., when one expects something bad to happen to a protagonist, but is aware of, and entertained by, the fact that this is fiction and not reality). Mixed emotions might also derive, however, from second-level valuations of the given emotional experience. First-level valuations of having won a game against an opponent, for instance, could result in pride. Second-level valuations, however, could disdain pride as inappropriate in the present context (e.g., when the opponent was a child). In this instance, not only might the regulation motivation to dampen the pride arise (as proposed by the model), but also further emotional reactions, such as embarrassment, which would result in a mixed-valence emotional episode.

Evidence from developmental investigations also suggests that the arousal dimension of affective experiences, that is, the extent to which they are activating or deactivating, might be relevant for understanding age-related differences in emotion regulation motivation. Physiological aging is associated with a deceleration of physiological adaptation processes and hence a reduced physiological flexibility. Both theoretical considerations and empirical

evidence indeed suggest that older adults recover more slowly than younger individuals from states of affective arousal (Charles & Luong, 2013; Wrzus, Müller, Wagner, Lindenberger, & Riediger, in press), and that tense arousal implies greater cognitive costs for middle-aged and older individuals as compared to adolescents and young adults (Riediger et al., 2014a). This might be a reason why older adults tend to regard high arousal states of both positive and negative affect as unpleasant, whereas younger individuals clearly differentiate the valence and arousal dimensions in their representation of emotional states (Keil & Freund, 2009). With older age, desired reference standards in Gross' second-level identification stage should thus be characterized by lower levels of arousal. Indeed, with respect to positive emotions, older adults show stronger preferences to ideally feel low arousal positive emotions (e.g., calm, peaceful) over high arousal positive states (e.g., excitement, pride), relative to younger individuals (Scheibe et al., 2013).

In short, empirical evidence on age-related differences in emotion regulation motivation is consistent with the conceptualization of the identification stage in the extended process model of emotion regulation. For example, age-related differences in chronically activated emotion regulation goals may have downstream implications for the various sub-steps in the identification stage, such that older age may be related to greater vigilance in checking for discrepancies between perceptions of emotional states (sub-step P in the model) and the valuation of those states (sub-step V in the model). Developmental research also points to the possibility that the motivation to maintain given emotional states may derive from anticipating possible future discrepancies between a given emotional experience and the reference state, even when no such discrepancies are currently perceived. We have demonstrated that distinguishing regulation goals to maintain versus enhance versus dampen given emotional experiences is indeed helpful for understanding age-related differences in emotion regulation motivation. The mechanisms underlying these age-related differences,

however, are not yet fully understood. From a developmental perspective, a theoretical conceptualization of factors that contribute to individual differences in emotion regulation motivation would be most valuable. We have exemplarily alluded to factors that may contribute to age-related differences in emotion regulation motivation, including: the individual's socio-historical context; the instrumentality of emotional states for the attainment of life-phase contingent developmental tasks; as well as characteristics of the perceived emotional state, such as their mixed valence and their arousal level.

Thoughts on the selection and implementation stages. As reviewed previously, researchers have suggested that the well-documented age-related differences in everyday emotional experiences may be partly due to variation in emotion regulation motivations. A systematic investigation of this possibility, however, is still lacking. For example, few studies have directly linked age-related changes in emotional experiences to processes of emotion regulation (for a related discussion see Isaacowitz & Blanchard-Fields, 2012). The extended process model of emotion regulation emphasizes that taking a procedural approach to the investigation of this possibility would be vital. One would need to show that individuals from various age groups translate their different motivations into suitable regulation strategies, enact these, and thus yield the desired regulatory effect. According to the extended process model, this emotion regulation process involves two further second-level valuation stages over time: The input of the *selection* stage is the identified emotion regulation motivation (i.e., whether to regulate one's emotions and in which direction), and the respective valuation process leads to the choice of a class of regulation strategies to achieve this goal. The selected strategy is then itself the input of the *implementation* stage, involving the identification of a suitable regulation tactic and its enactment. In our view, an important step for future tests of the model would be to investigate whether there are age-related differences in this complex sequence of valuation cycles.

Similar to our aforementioned discussion of individual differences in emotion regulation motivations (in the identification stage), we believe it would also be important to have a theoretical conceptualization of factors that contribute to potential variation between persons in the subsequent steps of the emotion regulation process (i.e., the selection and implementation stages); developmental psychologists would be highly interested in systematic age-related differences in particular. There is, for example, evidence that people of different ages within the range from adolescence to old age employ different emotion regulation strategies (e.g., Blanchard-Fields, Mienaltowski, & Seay, 2007; Zimmermann, 2014). To mention just one example, older adults seem to prefer emotion regulation strategies that help them to pre-emptively avoid negative and arousing situations. They appear to structure their social environments such that they include a larger proportion of emotionally close social partners, which may reduce the incidence of interpersonal tensions and increase the likelihood of positive social interactions (for a review, see Luong, Charles, & Fingerman, 2011). When social conflicts do arise, related research suggests that older adults may be more likely to cope by using avoidant or disengagement strategies, such as by avoiding conflict, ignoring the situation, or doing nothing (e.g., Birditt, Fingerman, & Almeida, 2005). One explanation could be that (as mentioned previously) with older age, highly arousing emotional situations (e.g., interpersonal tensions) become more detrimental for cognitive functioning and physical health. It may thus be particularly important for older adults to avoid these types of situations in daily life. Again, however, the mechanisms underlying age-related differences in emotion regulation strategies are still not well-understood. A conceptualization of factors influencing the valuation process of the identification cycle and the subsequent valuations in the selection and implementation stages would therefore be a critical first step in elucidating how age-related differences in emotion regulation goals are translated into concrete and specific emotion regulation strategies.

Some researchers have also proposed that the effectiveness of implementing chosen emotion regulation tactics to yield the desired regulatory results (in the terminology of the extended process model, the output of the implementation stage) should be spared from aging-related declines (e.g., Urry & Gross, 2010), due, for instance, to the accumulation of life experience and the increase in pro-hedonic emotion regulation motivations from adolescence to old age. Scheibe and Blanchard-Fields (2009) indeed found that when down-regulating feelings of disgust, older adults exhibited lower costs to their cognitive performance compared to younger adults, suggesting that with older age, emotion regulation efficiency may be spared. Also with respect to avoidance strategies in social contexts, research has shown that when older adults avoided arguments with others, they exhibited less daily negative affect reactivity compared to younger individuals, suggesting that older adults may use such strategies more effectively to dampen negative affect (Charles, Piazza, Luong, & Almeida, 2009). In addition, when regulating emotions during a laboratory social conflict task, older adults were more effective at using self-distraction strategies to reduce their levels of negative affect reactivity compared to younger adults (Luong & Charles, 2014). Other studies indicated that older adults may also be more likely to use reappraisal strategies, which have often been associated with more adaptive emotional outcomes (John & Gross, 2004), and may, in some cases, apply these reappraisal strategies more effectively than younger adults (Shiota & Levenson, 2009). More recent findings, however, also suggest that resource requirements of the specific situation need to be considered as a potential moderator of age-related differences in emotion regulation effectiveness. For example, when dealing with complex hassles that overtax older adults' cognitive and physiological resource capacities, the opposite age trajectory is observed such that older adults seem *less* effective than younger individuals at regulating their emotional states (Wrzus, Müller, Wagner, Lindenberger, & Riediger, 2013).

Despite these findings, a comprehensive empirical understanding of age-related differences in emotion regulation effectiveness from adolescence to old age is still lacking. We believe that this may, in part, be due to the fact that different scholars and research disciplines use unique operationalizations of emotion regulation effectiveness, emotion regulation success, or emotion regulation failure. We are not aware of a commonly agreement on how to define such outcomes of emotion regulation, and on which criteria should be used for their empirical assessments. We do believe, however, that this would be highly valuable in facilitating communication and integrating various approaches to the study of emotion regulation across sub-disciplines in psychology. In our view, such a conceptualization of how to define and evaluate outcomes of the emotion regulation process would ideally be included in a unifying theoretical framework of emotion regulation.

In the target article, Gross aptly emphasized that the short-term effectiveness of emotion regulation might not necessarily overlap with its longer-term implications for the individuals' development (e.g., when avoiding particular situations might have the desired emotion regulatory effect in the current moment, but may deprive the persons of the long-term positive effects that exposing themselves to those situations might have). A conceptualization of emotion regulation outcomes should thus differentiate criteria that indicate the short-term effectiveness from criteria that indicate the longer-term adaptiveness of given emotion regulation processes. From a developmental perspective, this point may be further complicated by the fact that the relative importance of various short- and long-term outcomes that constitute adaptive functioning may change across the lifespan. For example, in some cases, it may be adaptive for adolescents and younger adults to forego momentary hedonic pleasures (e.g., going to a party) for the attainment of longer-term instrumental motives (e.g., studying to get good grades to get into the university of one's choice). In contrast, for older adults with their foreshortened time perspectives, endorsing more present-

oriented motives to regulate momentary emotional experiences may also be more adaptive for them in the long run. Thus, in defining and understanding short-term emotion regulation effectiveness and long-term emotion regulation adaptiveness, it may be important to consider a wide range of affective, psychosocial, cognitive, and health outcomes on multiple time scales to better understand how particular emotion regulation efforts may be associated with unique outcome trajectories or profiles across the life-span.

Conclusions

In this commentary, we showed that the extended process model is a suitable theoretical framework for integrating available developmental evidence on emotion regulation from adolescence to old age. The extended process model also lends itself as a framework for identifying as of yet unanswered questions and for organizing future developmental research activities. We exemplarily pointed to some of these open research fields in our commentary. The model could, for example, guide future investigations on how the age-related differences in emotion regulation motivation may inform the subsequent stages of the regulation process, that is, in the selection and implementation of regulatory strategies. These types of studies are necessary to delineate how age-related differences in everyday emotional experiences are derived from, and feed back into, emotion regulatory processes.

We also suggested that considering a developmental perspective on emotion regulation might even contribute to the theory by pointing to aspects of the emotion regulation process that can be further refined. Specifically, we argued that theoretical considerations of factors that contribute to individual differences in emotion regulation and of criteria that allow evaluating the outcome of emotion regulation attempts would be most helpful for developmental psychologists. These aspects are not yet explicitly part of the extended process model (although Gross touches on each of them in his target article). We elaborated on them from a developmental perspective with a focus on the age range from

adolescence to old age. For instance, we discussed some factors that might contribute to age-related differences in the identification of emotion regulation goals, such as the individuals' life contexts; the instrumentality of affect for age-graded developmental tasks (e.g., the role of negative affect in establishing autonomy during adolescence); and characteristics of the momentary emotional experience, such as their potentially mixed valence, or their arousal level. Finally, we emphasized that research on emotion regulation would profit from commonly accepted definitions of what constitutes (and which criteria indicate) the success (or failure) of emotion regulation, both with regard to its short-term effectiveness and with regard to its longer-term adaptiveness.

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Footnotes

¹ Note that such motivation to maintain a given emotional state is different from the concept of emotional inertia. Maintenance motivation refers to the outcome of a momentary identification cycle, and can thus change over time when (actual or anticipated) discrepancies between perceived and desired emotional states change, and subsequent identification cycles thus yield different outcomes. The term emotional inertia, in contrast, is typically used in the literature to refer to the stable (trait-like) tendency to be emotionally inflexible, that is, to have emotional experiences that persist even if the context changes (e.g., Kuppens, Allen, & Sheeber, 2010). Furthermore, the motivation to maintain emotional states is in our view a priori neither good nor bad; that depends on the particular context. Emotional inertia, however, is considered a sign of psychological maladjustment (e.g., Koval & Kuppens, 2012). The motivation to maintain emotional states is also different from what Gross refers to as emotion regulation maintenance, namely, the carrying on of emotion regulation attempts, which happens when the outcomes of repetitions over time of the three higher-order regulation systems (identification, selection, and implementation) are highly similar. The motivation to maintain given emotions, in contrast, refers to the outcome of singular identification cycles at given points in time (and can thus be part of, but is not synonymous to, emotion regulation maintenance).