Developmental Psychology

For Whom Is the Path the Goal? A Lifespan Perspective on the Development of Goal Focus

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Goals are an intensely studied concept in various research areas within psychology. They can be defined as cognitive representations of means-ends relations. The relative focus on the means or the ends (i.e., goal focus) can vary between persons and over time. Taking a lifespan perspective, we use the existing developmental, social-cognitive, and motivational literature to portray how goal focus might develop across the entire lifespan. For this purpose, we take findings on the perception of goal-directed behavior in infancy, the development of (self-)representations and goal pursuit in adolescence, and of goals across adulthood into account. We propose that goal focus changes across the lifespan due to age-related cognitive and motivational development, and that the relative impact of cognitive and motivational processes on goal focus varies across the lifespan. We conclude by integrating different approaches and findings from a lifespan perspective.

Setting and pursuing goals are fundamental processes that guide human behavior over time and across situations (e.g., Kruglanski, 1996). Goals substantially contribute to subjective well-being and serve as a source of meaning in life (e.g., Emmons, 1996). They constitute a major topic in psychological science, for instance in motivational psychology (e.g., Austin & Vancouver, 1996; Kruglanski et al., 2002), social psychology (e.g., Fishbach & Ferguson, 2007), industrial and organizational psychology (e.g., Locke & Latham, 2002), health psychology (e.g., Lüscher et al., 2017), and educational psychology (e.g., Cain & Dweck, 1995; Zimmermann & Kitsantas, 1997). Goals have also been a research topic in developmental psychology including infant and child development (e.g., Carpenter et al., 2005; Daum et al., 2008; Gampe et al., 2016; Hunnius & Bekker, 2014; Woodward, 1998), adolescent development (e.g., Gestsdottir & Lerner, 2008; Salmela-Aro, 2009) as well as adult development and aging (e.g., Freund et al., 2019; Hamm et al., 2016). However, the two developmental research strands – goal research in infancy and childhood on the one hand, and goal research in adulthood and aging on the other – come from different perspectives and involve different theoretical as well as empirical approaches. Consequently, there is a dearth of goal research that encompasses the entire lifespan, including consistent terminology and an overarching theoretical framework (as is true for many research topics; for notable exceptions in action or goal research see e.g., McGuigan et al., 2011; Wermelinger et al., 2019).

We maintain that a lifespan perspective on goal focus, that is, the relative salience of the means and ends of goal pursuit, is theoretically and methodologically fruitful for multiple reasons: First, from an action-theoretical perspective, goals direct human behavior throughout the lifespan, and constitute an important way in which humans actively shape their development. Second, given the impact of goals on cognition, emotion, and behavior, understanding what kinds of goals humans pursue and how they represent them in different phases of the lifespan constitutes a promising venue to investigate developmental changes in cognition, emotion, and behavior. Third, the distinction of means and ends (which is at the heart of the construct of goal focus) is also central in the literatures concerning different phases of the lifespan, such as action perception in infancy (e.g., Carpenter et al., 2005), developing identity-relevant goals in adolescence (e.g., Salmela-Aro, 2009), and motivational...
development in adulthood (e.g., Mustafić & Freund, 2012b). Integrating these research strands in a lifespan approach into one overall framework encourages exchanges and critical discussions among developmental researchers but also with motivation scientists. This might lead to a better understanding of developmental processes across the lifespan as well as of the goal construct itself. For instance, discussing questions such as "What constitutes a goal?" from different perspectives can sharpen the distinction of goals from wishes or actions. Finally, adding a large age range to the study of goal focus introduces greater variability in certain goal dimensions, such as their content, abstractness, or temporal scope, as well as in development-related processes, such as abstract thinking. This variability can help to pinpoint under which conditions theoretical assumptions about the underlying processes and functions of goal focus might hold. For instance, goal focus research constrained to adulthood might neglect the role of cognitive processes impacting goal focus during childhood because these processes show little variability across adulthood. In sum, a lifespan perspective on goal focus promises a more comprehensive view of goals and their development as well as a more thorough understanding of developmental processes that influence goal focus.

In this paper, we propose such a lifespan perspective on goal focus. To this end, we integrate findings from infancy to adulthood and into old age into one theoretical perspective on the factors influencing goal focus across the lifespan. With this, we aim to stimulate both theoretical discussions and empirical research on goals across the lifespan.

The existing developmental literature on goal focus is limited and pertains primarily to changes across adulthood. Consequently, it is currently not possible to offer a systematic review or meta-analysis of empirical studies on this topic. Therefore, we build our theoretical model on the basis of research that distinguishes between a focus on the means and outcomes of goal pursuit in different age phases. For infancy and early childhood, we consider the literature on the perception of goal-directed behavior (henceforth called action perception). Within this literature, we focus particularly on research that allows to differentiate between the perception of actions and their end states. Furthermore, we include research on broader developmental processes that may help explain changes in goal focus during childhood and adolescence, such as the development of self-representations, which are indicative of the development of cognitive representations more generally. For the adult segment of the lifespan, we review the theoretical and empirical work on developmental changes in goal focus across adulthood.

Conceptualizing Goals and Goal Focus

To establish common ground between the considered literatures, we first provide a definition of goals and then delineate the concept of goal focus, the main concept of this article. Afterwards, we turn to our lifespan perspective on goal focus.

Goals

Goals can be defined as cognitive representations of the association of means and ends. In other words, goals include both, the ends (or end states) one wants to attain and the means (or actions) to attain them (Kruglanski et al., 2002). Although this definition is widely accepted in the motivational literature, it differs notably from the one used mostly in infancy and early childhood research, where the term goal is used more ambiguously and often without an explicit definition (for an exception, see Loucks et al., 2017). In most research on early childhood, goals refer to the concrete and observable "endpoint" or "outcome" of an action such as the grasping or the manipulation of an object, or in some cases a certain object itself (e.g., Carpenter et al., 2005; Elsner & Pfeifer, 2012). Often, it remains unclear whether the term 'goal' refers to the endpoint itself or the representation of the endpoint, and whether means are also included in this representation. This ambiguous use of the term 'goal' is likely due to the limited cognitive capacities of infants and young children (e.g., they cannot yet verbalize desired end states and their relations to specific means); consequently, research paradigms target primarily the perception and production of simple object-directed manual actions.

In the present paper, we use the term goal as defined in the motivational literature, namely as a cognitive representation of a desired (or dreaded) outcome a person can approach (or avoid) through specific means (e.g., specifically chosen actions; Kruglanski, 1996). In this definition, goals can vary with regard to their abstractness and temporal scope (e.g., Austin & Vancouver, 1996; Carver & Scheier, 1990), with some goals referring to temporally closer states than others (e.g., “I want to pass the exam tomorrow” vs. “I want to receive my PhD in the next four years”), and some goals being more concrete than others (e.g., “I want to run a marathon in less than 3 hours and 30 minutes” vs. “I want to lead a happy life”). Thus, also very concrete and temporally close goals, such as grasping a toy in order to play with it, are included in this definition. Therefore, this definition provides enough flexibility to refer to the kinds of goals infants and young children perceive (and pursue) as well as to the increasingly abstract goals as children develop into adults. We use this definition as a lens through which we view the existing theoretical and empirical literature. Instead of keeping each article’s individual wording, we translate the thoughts and findings into a common language based on this definition to facilitate integration.

We use the term outcome to denote the intended ends or consequences of goal pursuit, that is, why a person pursues a certain goal. Note that this can be different from (or only a part of) the actual outcome (e.g., when things go wrong, or a person does not anticipate the full range of consequences of their behavior). We concentrate on intended outcomes here, because goals would be mere behavior-effect associations if they were stripped off all intentionality. With means, we describe how to reach a certain outcome, comprising concrete actions, such as grasping an object or studying for an exam, as well as more abstract means such as “being friendly.” Whereas means provide guidelines for action, outcomes serve to give direction and meaning (Freund & Hennecke, 2015). Typically, means are more concrete relative to their outcomes, which is related to the hierarchical organization of goals: The outcome of a lower
order (more concrete) goal can constitute the means of a higher order (more abstract) goal (e.g., Carver & Scheier, 1990, 1998; Kruglanski et al., 2002). For example, the outcome of completing a PhD may be the means to get a job; getting a job, in turn, may be the means that enables one to live independently; which is another step on the way to the potential ultimate goal of achieving a happy life. It is therefore essential in goal research to specify the status of means and outcomes in reference to a given goal in a larger goal system. When referring to the position of a goal in the goal hierarchy, we will speak of goal complexity: A goal is more complex, the further up it is in the hierarchy of a goal system (i.e., the more levels of subgoals are below it and therefore the more links to subgoals or concrete actions it encompasses).

Goals also vary in their temporal extension (e.g., Austin & Vancouver, 1996). While some goals may span only minutes or hours, other goals may span years or even decades. The time frame can refer to means as well as outcomes: means may be applied for shorter or longer time periods, and an outcome may be achieved in the near or distant future. However, relative to the means, the outcome of a given goal is temporally (at least slightly) more distant, due to their cause-effect relation. Taking a developmental approach, we assume that there are differences in the temporal extension and complexity of children’s compared to adults’ goals: While adults are able to represent simple, temporally close goals as well as complex, temporally distant goals, young children’s understanding of time (e.g., Friedman, 2005) and their ability to form abstract representations is still limited (e.g., Harter, 1999), resulting in a limited ability to represent temporally distant and complex goals.

**Goal Focus**

Imagine Larry who wants to become friends with Paula. One strategy could be that Larry is particularly attentive to her. In this case, he focuses on the means, that is, the way how to befriend Paula. However, Larry could also focus on what the friendship with Paula means to him, for example, having a trusted companion. In that case, Larry primarily focuses on why to befriend Paula, that is, the consequences or the outcome of the friendship with Paula. These two kinds of goal focus are referred to as focus on the means (i.e., process focus) and focus on the ends (i.e., outcome focus). Adopting a process focus implies that the how (the means or process) of goal pursuit is more salient, whereas the why (the end or outcome) is more salient in an outcome focus (Freund & Hennecke, 2015). Note, that when a person focuses on the means of goal pursuit at a given point in time this does not imply that the associated outcome is irrelevant or not represented – it is just less salient than the means (else it would be a representation of behavior). Conversely, adopting an outcome focus does not imply that the associated means to achieve it are irrelevant or not represented (else it would be more of a representation of a wish or dream). In other words, goal focus is defined by which aspect of goal pursuit is more salient to a person at a specific point in time. Further, goal focus refers to the relative salience of the means or the outcomes within a given goal and not a general preference for higher-order (abstract) or lower-order (concrete) goals.

Goals often comprise multiple means that are linked to the same outcome (i.e., equipollency) or multiple outcomes that are linked to the same means (i.e., multifinality). For instance, Larry might consider multiple means such as “giving Paula little presents”, and “telling her secrets” to achieve the desired outcome of having a trusted companion. Similarly, confiding secrets in Paula might serve multiple outcomes for Larry, such as establishing Paula’s trust and also to regulate his emotions associated with the secret. Depending on the goal, some means and/or outcomes might seem to be more typical (or less typical) than others, and there are likely individual differences in this perception. For instance, some people might perceive “having a trusted companion” to be the most typical description of (or even identical to) the goal “to befriend Paula”. Others might perceive “telling her secrets” to be the best description.

We address goal focus as a relevant goal dimension for two reasons: First, to better understand how children construe goals and, thereby, how they learn about the associations of means and outcomes, it is essential to distinguish between these two aspects of a given goal and investigate how their relative salience changes across childhood. Given the enormous strides in cognitive development (especially regarding social-cognitive abilities and the formation of abstract representations) from infancy to adolescence, we hypothesize that goals as cognitive representations change accordingly regarding their relatively more concrete means and their relatively more abstract outcomes. As of yet, research on changes in goal focus has exclusively centered on the development across adulthood. Hence, a comprehensive description of how goal focus changes across the entire lifespan does not yet exist. Second, there is growing evidence that goal focus has predictive power for the success of goal pursuit as well as subjective well-being, for instance in dieting (Freund & Hennecke, 2012), exercising (Freund et al., 2010; Kaftan & Freund, 2020), and academic achievements in adults (Krause & Freund, 2016; for an overview, see Kaftan & Freund, 2018). Consequently, goal focus might also be a meaningful predictor of successful goal pursuit in children and adolescents.

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1 In keeping with the tradition of action theory in philosophy (e.g., Davidson, 1963), we reserve the term "action" to denote intentional behavior. In case we cannot assume intentionality, we will use the term "movement" for motor behavior, and the term "behavior" when we want to include also non-motor external reactions.

2 Note that sometimes means and outcome are hardly distinct, such as in the goal “I want to enjoy running,” which Kruglanski et al. (2018) have called means-ends fusion and conceptualized as intrinsic motivation.
Goal Focus Across the Lifespan

How does goal focus change across the lifespan? Coming back to our example of Larry and Paula, the main question of this paper is how the focus on the means or the outcomes of pursuing the friendship with Paula differs depending on whether Larry is 5, 10, 20, 40, or 70 years old. As we take a lifespan perspective, we consider developmental trends that might underlie these age-related differences in goal focus. Of course, there are also inter- and intra-individual variations in goal focus within age groups (e.g., depending on the specific goal and phase of goal pursuit or a person's cultural background; e.g., Freund et al., 2019; Miyamoto et al., 2013). However, here we focus exclusively on developmental changes. In particular, we propose that the relative importance of cognitive and motivational factors for goal focus differs across the lifespan: We hypothesize that aspects of cognitive development primarily drive changes in goal focus from infancy throughout childhood to adolescence. This includes basic cognitive abilities (e.g., processing speed, memory capacity, forming action-effect associations), advanced cognitive capacities (e.g., understanding of time, formation of abstract representations, ability to represent the future), and social-cognitive abilities (e.g., perspective taking, normative learning). In contrast, we posit that motivational development primarily drives changes in goal focus throughout adulthood and into old age. This includes, for example, changes in people's orientation towards gains and losses as well as changes in the temporal distance of goals (for an overview, see Figure 1).

Note, that early approaches to the development of effectance motivation also stress the importance of having an effect in the environment and the associated feeling of efficacy as a motivational factor (e.g., "self-efficacy," e.g., Bandura, 1993; "effectance," White, 1959). We do not challenge this view, but assume that this motivational factor stays more or less constant across the lifespan (although not necessarily across situations/domains, Bandura, 1993) and generally affects social, cognitive, affective, and motivational processes (see the principle of the primacy of primary control suggested by J. Heckhausen & Schulz, 1995).

Similarly, the above-mentioned cognitive abilities constitute an important basis for representing goals and therefore also goal focus. Because we assume that with adulthood these abilities are fully fledged (see Figure 1), they should not impact goal focus in a particular manner across adulthood. To illustrate this, the bottom part of Figure 1 acknowledges a certain impact of motivational development in early childhood and a certain impact of cognitive development in adulthood.

Additionally, societal and social factors might impact goal focus. For example, the structure and routines of the respective society might impact goal focus in certain life phases, such as during formal education (e.g., an increasing focus on tangible outcomes such as grades; we consider this in the section on goals inside and outside the school context). Also, social influences (e.g., through the affiliation motive) might contribute to a focus on the means or outcomes. For instance, in the context of normative behavior, the exact way how a certain ritual is done might become especially salient to demonstrate belonging to a certain group of people. So, in such a context, the concrete means might be more salient than the outcome. However, there is no clear evidence how social influences might systematically contribute to changes in goal focus across the entire lifespan. Therefore, we only mention them where we perceive
an added value.

In the following, we will describe the research not chronologically moving from infancy to old age, but instead we start with adulthood. We do so because there exists some research that particularly investigated how goal focus changes across adulthood, whereas the evidence for the other age groups is far more limited. Also, the terms "goal" and "goal focus" are more clearly defined in the literature in adulthood. After the section on goal focus across adulthood, we turn to infancy and early childhood, and then to adolescence. We conclude with an integration of the approaches and findings from a lifespan perspective.

Goal Focus Across Adulthood

Theoretical Considerations

One of the most dramatic changes across adulthood is the decrease of (subjectively) available resources. Where developmental gains are prominent in younger age groups (e.g., increases in available money or social capital across young and into middle adulthood), developmental losses become more and more ubiquitous with increasing age, particularly in old age (e.g., decreases in physical strength or life time; Baltes et al., 2006; Mustafić & Freund, 2012a). Moreover, young adults may not yet have had the opportunity to acquire a large number of resources (but only start to accumulate them), whereas older adults are more likely to have accumulated resources such as money or social capital. Therefore, younger adults can be expected to be highly motivated to accumulate resources that can then be invested into goal pursuit. In contrast, with increasing age and, in many cases, more accumulated resources, adults are likely to be more motivated to maintain their resources and shield them against losses (Gong & Freund, 2020). In fact, correlational and experimental evidence supports the hypothesis that goal orientation towards gains, maintenance, and avoidance of loss shifts across adulthood: Compared to older adults, younger adults hold and select primarily gain oriented goals (e.g., "I want to improve my physical fitness"), whereas middle-aged and older adults are more maintenance oriented and loss-avoidant in their goals (e.g., "I want to stay physically fit"/"I do not want to lose my physical fitness"; Ebner et al., 2006). Moreover, younger adults are more persistent in pursuing tasks that are aimed at gains, whereas older adults pursue a task longer when it is oriented towards bringing back losses (Freund, 2006). As argued and empirically supported by Mustafić and Freund (2012b), the motivational orientation towards maintenance and the avoidance of losses are related to a stronger focus on the means, because these goals do not specify an endpoint towards which to strive. For instance, wanting to stay healthy is not achieved at any particular point in time and can therefore not be abandoned as some other goals are after their completion, but instead requires continued goal pursuit. Maintenance or loss-avoidance goals are typically extended over longer periods of time and require a sustainable way to pursue them (e.g., working out regularly, healthy diet), which, in turn, necessitates a stronger monitoring of the means of goal pursuit. Even though people might check on the desired outcome (i.e., the status quo) from time to time, there is little need for close monitoring of the outcome because no change is expected (instead, "continue what I have been doing" should be in the center). Thus, because of an increasing maintenance orientation across adulthood, focusing on the means becomes also more likely. The opposite is the case for gain-related goals, which are tied to a change of the actual towards the desired state. When focusing on the achievement of gains (e.g., getting a degree), there is often an endpoint signaling when it has been achieved (e.g., graduation). To monitor progress in goal pursuit (i.e., a reduction of the actual-desired discrepancy), the actual and desired state have to be compared regularly (e.g., number of required classes successfully completed; Carver & Scheier, 1990), which should render the outcome more salient than the means (Freund et al., 2019). Taken together, shifts in goal orientation across adulthood (as indicated in the top part of Figure 1) contribute to younger adults’ stronger outcome focus and older adults’ stronger focus on the means.

Future time perspective is another construct that might contribute to a developmental shift from outcome focus to a focus on the means in adulthood. Future time appears more extended in younger adults and becomes increasingly shorter with age (Lang & Carstensen, 2002). As proposed by Socioemotional Selectivity Theory (SST; Carstensen et al., 1999), people's social goals relate to their perception of future time (Carstensen et al., 1999; Lang & Carstensen, 2002). According to construal level theory (e.g., Trope & Liberman, 2003), people represent events that lie in the distant future (or are generally psychologically more distant) more abstractly (i.e., high-level construals), and events that lie in the near future (or are psychologically closer) more concretely (i.e., low-level construals). With regard to actions, these low-level construals are represented in terms of "how" aspects, whereas high-level construals are represented in terms of "why" aspects of actions (Trope & Liberman, 2003; see also Vallacher & Wegner, 1987). Thus, construal level theory predicts that, because of a shorter future time perspective, older adults are more likely to focus on the means of goal pursuit. Younger adults, having an extended future time perspective, should be more likely to hold goals that lie in the distant future, represent them abstractly, and hence focus on the outcomes (Freund et al., 2019).

There are also reasons to argue for the opposite developmental trajectory of goal focus based on research on skill acquisition. According to Zimmerman and Kitsantas (1997), goal focus depends on skill level, such that people are likely to adopt a focus on the means during skill acquisition and

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3 With resources we refer to goal-relevant means that are limited at any given point in time and, once spent, no longer available until replenished (such as money, time, or social support; Freund & Riediger, 2001).
to switch to an outcome focus once they have mastered the skills. One might argue that older adults have acquired many of the skills they need for goal pursuit and should therefore be able to concentrate on the outcomes they want to achieve. In contrast, younger adults might more likely still need to acquire many of the skills and means necessary for goal pursuit (e.g., to establish a career) and therefore focus more on the means than on the outcomes.

Apart from these motivational changes across adulthood, cognition also undergoes significant changes, such as a decline in fluid abilities (e.g., Li et al., 2004). However, the cognitive changes are not likely to impact goal focus for two reasons: First, factors that contribute to how one represents goals are mainly related to crystallized abilities, such as knowledge, which typically do not decline substantially across adulthood until the very end of life. Second, even if such changes as cognitive slowing were to affect the representation of goals, there is no reason to assume that it would do so differentially for means or outcomes.

### Empirical Evidence for Age-Related Changes in Goal Focus Across Adulthood

Research that investigated age-related changes in goal focus is limited to few studies (e.g., Freund et al., 2010; Mustafić & Freund, 2012b), which we will report in more detail. The overarching goal of these studies was to find out whether there are age-related differences in goal focus between younger and older adults. More precisely, Freund et al. (2010) tested the opposing hypotheses outlined above whether goal focus shifts from the outcomes towards the means with age (as predicted by differences in goal orientation and future time perspective) or vice versa (as predicted by differences in skill level). For their first study, the authors developed a questionnaire to assess preference for goal focus. It contained different goals that were described in terms of the means or outcomes of goal pursuit (e.g., example goal: to quit smoking, example means: not buy cigarettes, example outcome: reduce toxins in body). Participants indicated which descriptions fitted the goal best in their opinion. Whereas younger adults chose more outcome- than means-related descriptions, older adults did not show a clear preferential pattern. Importantly, however, older adults chose more means-related descriptions relative to younger adults. Confirming this pattern using a different paradigm in a second study, older adults were more likely than younger adults to select a task that focused on the means rather than the outcomes of a given goal.

The third study tested the hypotheses in everyday life with younger and older adults who all shared the goal to start exercising regularly. Goal focus was operationalized as people’s motives to exercise: Items indicating the enjoyment and social aspects of engaging in exercising as reasons served as indicator of a focus on the means, while items concerning the outcomes of health, weight control, and attractiveness indexed an outcome focus. As expected, older adults were more likely to report a focus on the means than an outcome focus. Moreover, younger adults were more outcome-focused than older adults. However, contrary to expectations, both age groups reported similar levels of focusing on the means. A similar pattern of results was found by Mustafić and Freund (2012b). In this study, participants aged between 18 and 82 years listed their personal goals and rated them regarding the salience of the means and the outcomes. Age was significantly positively related to focusing on the means but not the outcome. This pattern of age-related differences in goal focus across adulthood has also been found in studies that were primarily concerned with the adaptiveness of goal focus (Kafant & Freund, 2020). Taken together, these studies provide evidence that goal focus varies across adulthood. Although the results differ slightly across studies, the general pattern suggests that older adults focus more on the means and younger adults more on the outcome.

In summary, theoretical considerations as well as empirical findings indicate an increasing focus on the means (and decreasing focus on the outcomes) across adulthood. We propose that motivational processes are the major driving forces for this change. More specifically, we assume an increasing focus on maintenance and loss-prevention goals as a driving process (Mustafić & Freund, 2012b), as well as an increasing pursuit of goals that lie in the closer future due to the limited future time older adults experience (Freund et al., 2019; see Figure 1). The proposed influence of skill acquisition does not seem to play a major role in age-related differences of goal focus, at least not in a general fashion as proposed before. Older adults might also need to acquire skills for new goals, and consequently focus on the means.

As there is no theoretical or empirical work on the concept of goal focus in infancy, childhood, and adolescence, we refer to the relevant literature on the development of action perception in infancy and early childhood (preschool age), and broader developmental processes in school-aged children and adolescents (e.g., the development of goals and other representations, decision-making and risk-taking) in the next sections.

### Goal Focus in Infancy and Early Childhood

In this section, we aim to answer the question how goal focus develops before reaching adulthood and turn to research from infancy to early childhood. To this end, we first summarize some major findings on the perception of goal-
directed behavior, that is, action perception. This research informs us from which age on infants are sensitive to the goal-directedness of (others') actions and lets us conclude that they have a basic form of action-outcome-representations, conforming to our definition of goals. We consider the ability to form action-outcome-representations as an important precondition for goal focus and hence briefly present research on this. Then, we present findings that can inform us about infants' and young children's goal focus.

Perception of Goals and Goal-Directedness in Infancy and Early Childhood

How do infants and children perceive actions as being directed towards certain outcomes? How do they learn about the goal-directedness of actions? According to ideomotor theory (Greenwald, 1970; James, 1890), perceiving and knowing the effects (i.e., the outcome) of an action is important for action planning and control. In infancy, initially arbitrary movements become associated with the outcome they produce, so that bidirectional action-outcome representations are formed, with "action" and "outcome" referring to the intended movement and anticipated effect (for a review, see Shin et al., 2010). Therefore, activating the representation of an outcome will activate the motor pattern as well and enable intentional movements (i.e., actions). Although ideomotor theory cannot explain how infants learn about others' intentions, it explains how their own basic goals (i.e., cognitive representations linking actions/means and outcomes) emerge through experience. The link between the representations of own and others' actions is discussed, for example, in the common coding approach (Prinz, 1997). Here, action perception and production are assumed to be closely intertwined, in that "there are certain products of perception on the one hand and certain antecedents of action on the other that share a common representational domain" (Prinz, 1997, p. 152). This idea has been empirically supported (e.g., Gerson et al., 2015; Reid et al., 2019). Together with ideomotor theory, common coding helps to explain how infants learn about others' goals through the bidirectional association of sensory and motor representations. For example, once infants have an action-outcome representation of, for instance, their own grasp, seeing a person's grasping hand will also activate their action code of grasping, and further the associated outcome representation (e.g., attaining a certain object). Support for this comes from behavioral and neurophysiological research. Eye-tracking data shows that the prediction of the outcome of an observed action is related to the subsequent imitation of the same action if shared motor representations are involved (Gampe et al., 2016). Further, 7-month-olds show motor system activation when observing an adult's goal-directed behavior, which in turn predicts the infant's likelihood of imitating the behavior (Filippi et al., 2016).

Multiple studies support the notion that infants do not only behave in a goal-directed way from early on but are also able to perceive others' behavior as goal-directed. For instance, infants as young as 10 months anticipate the outcome of observed actions (as indicated by predictive gaze shifts, i.e., their gaze arrives at the target position before the observed agent does) both when performing the action themselves, but also when observing others, though to a lesser extent (Rosander & von Hofsten, 2011; for a similar finding in adults, see Flanagan & Johansson, 2003). The frequency of predictive gaze when observing others increases with age (Gampe et al., 2016), but also depends on the salience of the outcome (Henrichs et al., 2012), and the dynamics of the action (Daum et al., 2016). Furthermore, infants' action prediction improves with their own motor experience (Krogh-Jespersen & Woodward, 2018), and action production is related to subsequent action prediction (Cannon et al., 2012). Apart from predictive-gaze studies, results of a violation-of-expectation looking time paradigm suggest that children from 6 to 12 months of age expect an agent to perform the most efficient movement when performing an action (e.g., Gergely & Csibra, 2003). Beyond this, 10-month-olds seem to take the costs of actions into account when evaluating outcomes (Liu et al., 2017). Further evidence for children's early sensitivity to others' goals and intentions comes from imitation paradigms: 14- to 18-month-olds imitate intentional movements of an agent at a much higher rate than accidental ones (Carpenter et al., 1998) and 18-month-olds reproduce the intended outcome of an observed action, even when observing a failed attempt (e.g., Meltzoff, 1995). Together these results indicate that infants are cognitively able to perceive the goal-directedness of actions as well as predict their outcomes and therefore have at least a rudimentary form of action-outcome representation. The abilities to perceive others' behavior as goal-directed and to correctly predict action outcomes increase with age and experience but are also task-dependent. Also, actions are more easily perceived as goal-directed when resulting in a salient action effect (e.g., Henrichs et al., 2012; Jovanovic et al., 2007). Infants' sensitivity to others' goals is an important premise for the findings in the next section, because the paradigms used there largely rely on the observation of others' actions.

Empirical Indications for Goal Focus in Infancy and Early Childhood

Whereas the above-mentioned studies inform us about infants' cognitive ability to perceive actions as goal-directed, and to form action-outcome representations, most of them do not allow to draw any conclusions regarding infants' goal focus (i.e., whether they focus more on the means or outcomes). For instance, one might argue that children's production of a successful action when observing a failed attempt serves as an indicator for an outcome focus.

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6 With imitation we refer to all variants of reproducing behavior, independent of whether the imitator understands the intention of the actor.
in early childhood. Instead of reproducing the exact same (unsuccessful) means, children diverge from the movement pattern to bring about the intended outcome. However, it is also possible that children do not encode the unsuccessful movement pattern (e.g., pulling on an object and then slipping) but only the target movement (e.g., pulling), which can then be imitated together with the intended outcome. This would not allow any interpretation regarding young children’s goal focus.

With the help of other paradigms, we can speculate whether the means or the outcome is more salient for infants and small children. One informative paradigm was introduced by Woodward (1998). It consists of a habituation phase in which infants see a person repeatedly grasping the same of two toys in the same location. After habituation, the location of the toys is swapped, and infants see the person either grasp the “old” toy in the “new” location or the “new” toy in the “old” location. Because infants around the age of 6 months look longer when the “new” toy is grasped, Woodward (1998) inferred that infants expect the person to grasp the same toy as before instead of making the same movement (i.e., reach to the “old” location). Apart from indicating infants’ ability to perceive goal-directedness, this can be interpreted as a focus on the outcome instead of the means. Further support for a stronger focus on the outcome than the means in infancy and early childhood comes from Carpenter et al. (2005): When infants saw a toy mouse being moved into a house in one of two action styles (either hopping or sliding), they ignored the action style and simply put the mouse in the house. However, when the house – a salient end position of the action – was absent, they were much more likely to imitate the action style. The authors conclude that in the house condition, infants perceived the ‘putting into the house’ as the intended outcome, while in the no-house condition they viewed the action as an outcome in itself (for similar results in adults, see Schachner & Carey, 2015). Therefore, in both cases (as well as in the looking-time paradigm by Woodward, 1998) infants focused on the outcome in their imitation. However, one might argue that in the two mentioned studies the means and outcomes were not always salient or distinct enough (e.g., the direction of grasping in Woodward, 1998 and the endpoint in Carpenter et al., 2005 in the no-house condition). For the imitation paradigm by Carpenter et al. (2005), this means that infants either perceive the action style or the endpoint (the house) as the relevant outcome in this situation, depending on the salience of the endpoint and the distinctness of means and outcomes. This indicates that characteristics of the paradigm exert an influence on infants’ behavior.

Furthermore, research on means-end behavior in infants provides similar evidence for an outcome focus. By the age of 7-10 months, infants start to produce two-step actions (e.g., pulling a cloth towards oneself in order to grasp a toy) that are directed towards the higher-order outcome (i.e., receiving the toy) instead of the first action step (i.e., pulling on a certain cloth; e.g., Gerson et al., 2015; Somerville & Woodward, 2005; Willatts, 1999). Before this age, infants seem to pull the cloth towards them for its own sake (Willatts, 1999). It has been stated that this development reflects a shift from a focus on the means (i.e., the cloth-pulling) towards the outcome during skill acquisition (e.g., Gerson et al., 2015). Alternatively, one could argue that instead of focusing on the means, younger infants also focus on the outcome but perceive what has been labeled a means as an outcome in itself (e.g., receiving a certain cloth; similar to the no-house condition in Carpenter et al., 2005). Independent of the specific interpretation regarding goal focus, this work suggests that infants around that age learn to engage in means-end behavior, and also start to differentiate between means and outcomes when observing others, dependent on their own experience (e.g., Gerson et al., 2015; Willatts, 1999).

In order to clearly distinguish between means and outcomes, Wagner et al. (2008) tested the imitation of different directed motion events in 33-month-old children. These events consisted of a motion path (up or down a ramp), a movement manner (hopping/sliding), and an end position (in or on a bowl). For example, a puppet could hop up the ramp and sit on the bowl. Unlike usual imitation paradigms, children could not imitate exactly what they had seen, but had to choose whether to imitate path and manner (i.e., the means) or the end position (i.e., the outcome) of the action, as the location of the two bowls was swapped on their ramp. Children showed evidence for a focus on the means; they primarily imitated the means at the expense of the outcomes. However, the low salience of the outcomes compared to the means might have impacted these results (Wagner et al., 2008).

Elsner and Pfeifer (2012) adapted the paradigm to investigate the role of the salience of the outcomes in the imitation choice task. In this new setup, the authors added a condition with more salient outcomes (i.e., the puppet aimed at arriving at a bench or a boat instead of the more unusual bowls used in the previous experiments) as well as conditions including verbal cues to highlight parts of the action. The variation in setup had a strong impact on children’s imitation behavior: When confronted with the more salient outcomes, children preferentially imitated them at the expense of the means. There were no significant effects in the condition with the less salient outcomes (i.e., the bowls). The importance of outcomes has also been recognized for the perception of goal-directedness (for a review, see Elsner, 2007).

Together the reported findings suggest that infants and young children are more likely to focus on the outcome than the means of a given goal. Importantly, the relative salience of the means and outcomes (i.e., goal focus) also seems to depend on the material presented in the paradigms, cautioning against strong interpretations regarding the preferred goal focus in early childhood.

Research on overimitation (i.e., the imitation of action elements that are causally irrelevant for a certain outcome; e.g., Horner & White, 2005; Keupp et al., 2015) and norm enforcement (e.g., Rakoczy et al., 2008) suggests that children around preschool age no longer primarily pay attention to the outcomes others achieve, but also to the means others use to achieve an outcome, even if some of the behaviors are causally irrelevant for the outcome. One major explanation for overimitation constitutes its social function. Not only does overimitation allow children to learn about norms and certain rituals, but it might also be a...
means to affiliate with others (for a review, see Hoehl et al., 2019). Additionally, children’s overimitation is context specific. Depending on the social cues (instrumental vs. conventional), children are more or less likely to overimitate and therefore the specific means seem to be more or less salient (e.g., Legare et al., 2015). Independent of the function of overimitation, we cannot know whether the means actually become more important than the outcomes or only more important than they used to be, because participants in these studies are always able to imitate both aspects, the means and outcomes. However, social context seems to modulate the salience of the means, which might indicate that goal focus can be influenced by the social context.

With respect to possible mechanisms explaining infants’ and young children’s goal focus, we propose that cognitive development plays a major role. After having formed representations of the outcomes of actions, infants and young children might be likely to explore the means in greater detail and, therefore, shift towards a stronger process focus, or at least focus more on the process than before. We could not identify any particular motivational process that could explain a stronger focus on the means or outcomes in childhood. As mentioned above, social motivation can explain the phenomenon of overimitation and social context might impact goal focus, but there is no reason to assume that social motivation influences goal focus in a general manner. This is not to say that there are no individual differences in motivation that might contribute to goal focus in early childhood (e.g., a strong achievement motive might be associated with a stronger outcome focus), but these individual differences are unrelated to early development. One might wonder about the development and impact of goal orientation in early childhood. To our knowledge, orientation towards gains, maintenance, or loss avoidance has not been investigated for this age group. One might speculate that children generally are more gain oriented, because they have not had the chance to accumulate many resources yet and additionally expect growth across different domains (Riediger et al., 2014). However, because there is no reason to assume that the primary orientation towards gains might change across childhood and adolescence, goal orientation cannot provide an explanation for potential changes in goal focus for this age range.

In sum, we propose that infants and young children focus on the outcomes of goal pursuit, primarily based on the development of their (social-)cognitive competencies. Findings in different lines of research support this notion by indicating a predominant sensitivity for outcomes in different paradigms. However, differences in the salience of means and outcomes in the research paradigms also impact infants’ and children’s attention to the means versus outcomes of an action. On the basis of findings on overimitation, we hypothesize that the means gain in importance as children grow older, though not necessarily more than the outcomes and across social contexts.

**Goal Focus in Later Childhood and Adolescence**

Research on the development of action perception is scarce in later childhood and adolescence (for notable exceptions for research on action perception across the lifespan, see e.g., Nielsen & Tomaselli, 2010; Wermelinger et al., 2019). To our knowledge, there are two studies documenting that overimitation increases throughout childhood and into adulthood (e.g., Nielsen & Tomaselli, 2010; for a review, see Hoehl et al., 2019). As mentioned above, the findings on the development of overimitation suggest an increasing sensitivity for means with age which might render them more important than before, or maybe even more important than the outcomes, at least in particular contexts (e.g., when learning about a culture; Nielsen & Tomaselli, 2010). However, given that overimitation increases into adulthood, but young adults also focus more on the outcomes than the means of goal pursuit, one could argue that overimitation might not indicate a focus on the means versus the outcomes. Instead, it seems to imply that both, means and outcomes, are similarly salient and worth imitating if possible. This similar degree of salience does not seem to apply beyond the context of overimitation paradigms; else one should observe neither a process nor outcome focus in young adults.

There is no research directly investigating goal focus for school children and adolescents. Therefore, we turn to the development of goals in the school context as well as the development of adolescents’ goals in more general. This research provides insights into how goal focus might change in later childhood and adolescence. Given that there is only very little research on the development of goals as cognitive representations for this portion of the lifespan, we also draw on the literature on self-representations. This literature provides general insights into the development of cognitive representations that can also be applied to goals. Furthermore, we consider decision-making in adolescence, as decision-making involves cognitive and motivational processes that might also impact goal focus.

**Goals Inside and Outside the School Context**

The work by Eccles et al. (1993) provides an entry point for potential changes in goal focus during school age. These authors have argued that the school environment becomes increasingly grade-focused and competitive from elementary to secondary school. When grades are seen as the major outcome of learning, school-aged children might become (even) more outcome-focused as they move through school and adopt the school’s emphasis on grades. Similar findings have been reported with regard to performance and mastery goal orientation, in that students had higher levels of performance goals with the transition to middle school (Anderman & Anderman, 1999). These findings support the notion that the school environment impacts students’ goal-related thoughts and beliefs (Anderman & Anderman, 1999). Together with the finding that the school environment can influence identity formation (Kaplan & Flum, 2012), the school context of an increasing emphasis on grades might also have an impact on goal focus in that it increases a focus on outcomes throughout later childhood and adolescence. More generally, the school context constitutes a potential societal influencing factor on goal focus which might also vary from culture to culture (e.g., in some cultures the schools’ focus on grades or other tangible outcomes might not increase across the years).
Regarding goal development in general, adolescence constitutes a time which is marked by the development and selection of goals that pave the way for the transition to adulthood (e.g., Erikson, 1968; Nurmi, 2015; Salmela-Aro, 2009). During this phase of selecting goals, adolescents need to consider the potential outcomes of different alternatives (Marcia, 1966). From this perspective, one could argue that adolescents are in a predecisional phase as described in the model of action phases (H. Heckhausen & Gollwitzer, 1987). In this phase, people weigh different possible outcomes against each other to decide which goals to pursue. Therefore, the outcomes should be more salient for adolescents when they reflect upon what they want to achieve in the future (Freund et al., 2019).

In contrast to these findings that might speak for an increasing outcome focus from later childhood throughout adolescence, Nurmi et al. (1994) showed that the temporal extension of many of the landmark goals for adolescents (e.g., graduating from high school) decreases with age, as they move closer in time to their realization (e.g., graduating from high school is much closer at the age of 16 compared to 13 years). Consequently, one could also argue that adolescents’ goals turn from high-level to low-level construals and that, therefore, the means might become more salient throughout adolescence, at least for certain goals.

### Development of (Self-)Representations in School-Aged Children and Adolescents

Research on the development of self-representations can provide insight on how cognitive representations of self-related characteristics and attributes develop in general. Overall, the literature suggests that self-representations develop from childhood to adolescence from more concrete to more abstract descriptions (e.g., Harter, 1999). In case this is a general trend in the development of representations, goals likely develop in a similar way.

Regarding the development of self-representations, Harter (1999) differentiates between three phases in childhood and adolescence, respectively. Whereas children at the age of 4 years describe themselves in terms of concrete behaviors or characteristics (e.g., I can run fast. I have brown eyes), children by the age of 7 years start to combine competencies in representational sets (e.g., being good at schoolwork, instead of being good at reading, spelling and counting). By age 11, children integrate their descriptions into higher-order generalizations (e.g., being popular). During adolescence, self-representations become more abstract (e.g., extraverted, intelligent) and initially isolated trait labels become, after a phase of confusion and conflict, more integrated and consistent. When applying this pattern of increasing abstractness to goals, different to younger children, older children and adolescents are more likely to represent their goals more abstractly, that is in terms of abstract outcomes rather than in terms of more concrete means (e.g., for thriving at school receiving a good education instead of learning for the exam tomorrow). Consequently, the increasing ability to think abstractly could render an outcome focus in later childhood and adolescence more likely than a focus on the means.

Furthermore, with increasing age children improve in their ability to represent future events (at least the ones that lie in the future) and orient their thoughts and actions towards them (for an overview, see Nurmi, 2005). Together with the core tenet of construal level theory (Trope & Liberman, 2003), that more distant events are represented more abstractly, this speaks for an increasing outcome focus from childhood to adolescence.

### Decision-Making in Adolescence

Some research on planning and decision-making suggests that adolescence is a phase of increased risk taking when the (even potentially harmful) longer-term consequences of actions are often not taken into account (e.g., Steinberg, 2007). Moreover, young adolescents are less future oriented than older adolescents and adults in that they plan less ahead and are worse in anticipating consequences of certain actions (e.g., Steinberg et al., 2009). Together with the assumption of construal level theory that near future actions are represented in terms of concrete details (Trope & Liberman, 2003), the finding that adolescents plan less ahead should lead them to concentrate on near future events and hence focus more on the “how” aspects of actions in the “here and now” (i.e., focus on the means) than on outcomes that often lie in the future, at least with regard to more complex goals. At first glance, this seems to contrast the aforementioned increasing ability to focus on abstract outcomes. However, young adolescents are particularly unlikely to plan ahead and anticipate consequences compared to older adolescents and young adults (Steinberg et al., 2009). Therefore, adolescents’ focusing on the means is likely to decrease as they grow older, which then fits with the assumption of an age-related increase of the focus on outcomes through adolescence. Consequently, this line of argumentation suggests a change from focusing on the means in early adolescence towards an outcome focus in later adolescence.

Apart from this “cognitive inability” perspective on adolescents’ risk-taking and decision-making, motivational changes in adolescence might also contribute to a stronger focus on the means compared to outcomes in this phase of life: Blakemore (2018) argues that the risk-taking observed in adolescence might be less due to the cognitive inability to foresee potentially harmful consequences of one’s actions, but rather be driven by a strong orientation towards social goals related to peers. If, as Blakemore suggests, the immediate social rewards of doing something with one’s peers are more important than potential later outcomes, this should increase a focus on the means over an outcome focus. However, this depends on what is regarded as the means and the outcome. If “having fun with peers” is perceived as an outcome, Blakemore’s suggestion does not have any implications for goal focus. Further, it remains unclear when and how exactly this pattern might change in the course of adolescence.

Taken together, different patterns of the trajectory of goal focus in adolescence are theoretically plausible: Most theories on adolescents’ development presented here support the notion of an early shift in that older children and adolescents become gradually more outcome-focused (i.e., through an increasing focus on grades in school, the need
As children grow older and have developed stable action-outcome associations, they likely focus increasingly on the specific means by which an outcome can be achieved, as indicated by overimitation and normative criticism (e.g., Rakoczy et al., 2008). However, it is unclear if the means increase in salience with age but might still be less salient than the outcome, or if the means actually become more salient than the outcome (as indicated by the vertical arrow in Figure 2). Further, the salience of the means seems to be context specific (Legare et al., 2015). Regarding broader developmental processes, we assume that cognitive development plays a major role for changes in goal focus in infancy and early childhood, whereas motivation plays a less important role (see Figure 2). This is not to say that motivational or social influences are irrelevant for children’s behavior in the first years of life. However, there are no theoretical reasons or empirical evidence leading us to assume that motivational or social processes lead to changes in goal focus.

As for later childhood and adolescence, we propose a shift from process focus to outcome focus, with different possible temporal patterns:

1. There might be an early shift towards a stronger outcome focus starting in later childhood (see Figure 2, dashed line). Cognitive development enables children to form more abstract representations (Harter, 1999). As outcomes are usually more abstract than means, the development of this ability might lead to an increase in outcome focus starting in later childhood throughout adolescence. Furthermore, children and adolescents become increasingly able to orient their thoughts and actions towards the future and might
therefore focus more on temporally distant outcomes (Nurmi, 2005). Over the course of primary and middle school, grades gain in importance and competition increases (Eccles et al., 1995). This likely renders outcomes more salient than the means of goal pursuit. Additionally, research on decision-making and planning (e.g., Steinberg et al., 2009) suggests a greater focus on the near future and therefore on the temporally closer means rather than the more distant outcome for younger adolescents. As they grow older, adolescents become more likely to take long-term consequences into account, which might focus their attention more on the outcomes of goal pursuit. Finally, adolescents find themselves in a phase of selecting future goals (Nurmi, 2005, 2013), where evaluating and comparing different outcomes might render them more salient than the means.

2. Alternatively, as adolescents grow older, they also move closer towards the realization of landmark goals. Thus, older adolescents might construe them on lower levels and focus more on the means over time. Apart from this, changes in goal content might affect goal focus in adolescence: As social goals gain in importance in adolescence (Blakemore, 2018), the very pursuit of goals (i.e., engaging in certain means) together with peers might become more important than its consequences, again suggesting a higher focus on the means than outcomes in adolescence. This would speak for a prolonged phase of focusing on the means throughout adolescence, with a shift towards outcome focus only occurring in young adulthood (as indicated by the dotted line in Figure 2).

Taken together, we assume that in later childhood and adolescence, cognitive as well as motivational processes impact the development of goal focus, which makes it difficult to formulate directed predictions. On the one hand, cognitive processes such as abstract thinking slowly reach adult levels, allowing for a broad range of representations, from very concrete to very abstract. This should also give more leeway to how goals are represented. On the other hand, motivational influences, such as the setting and pursuit of long-term goals, gradually gain in importance. These cognitive and motivational processes probably do not act independently from one another. For instance, a certain degree of ability to represent the future is needed to set and pursue longer-term goals. On top of these processes, social and societal influences likely impact what kinds of goals people pursue at different points in the lifespan, and whether they focus more on the means or outcomes. From a theoretical standpoint, both, an early and a late shift from process to outcome focus seem plausible (see Figure 2, dashed and dotted line). How fast and when exactly this shift from process to outcome focus might take place, remains unclear (indicated by the horizontal arrow in Figure 2) and needs empirical investigation.

In adulthood, we propose that relative to older adults, younger adults focus more on the outcomes, because of their goal orientation towards gains as well as their extended future time perspective. These assumed age-related differences in goal focus have been supported empirically (e.g., Freund et al., 2010; Mustafić & Freund, 2012b). These motivational changes might in part be influenced by societal factors such as expectations of when certain developmental tasks should be completed. We do not assume that cognitive processes have a major impact on goal focus across adulthood because 1) the level of cognitive abilities needed to represent goals of varying abstractness and temporal scope should be reached in the course of adolescence and 2) cognitive decline in later adulthood should not impact goal focus, as the crystallized abilities relevant for goal focus typically remain fairly stable across adulthood.

In sum, we propose that changes in goal focus across the lifespan are driven by two different processes: Because action perception and the development of (self-)representations in childhood are largely characterized by cognitive development, we assume that cognitive processes play a major role for goal focus and its development in that age range (e.g., establishing action-outcome associations; being able to form abstract representations). In later adolescence and adulthood, where cognitive abilities no longer act as constraints, we predict motivational processes to drive changes in goal focus (e.g., changes in goal orientation). In addition, it is possible that societal influences, such as social expectations, impact people’s goal focus (as mentioned in the school context), even though it is hard to make specific age-related predictions in that case.

Current Challenges

The literature on goals integrated in this paper stems from different psychological perspectives (e.g., motivation, action perception) and consequently includes a variety of goals, which do not only differ with regard to their content but also their temporal scope, abstractness, and complexity. Importantly, these differences in temporal scope, abstractness and complexity are largely confounded with age, as infants and young children are not yet able to represent (or at least communicate) more complex goals, which often span into the distant future. One of the factors contributing to these age differences might be the development of the comprehension of time. Without an understanding of what "tomorrow" or "next week" mean, the representation of complex, temporally distant goals seems difficult if not impossible. As a consequence of the confounding of age with the mentioned concepts, we cannot disentangle whether age-related differences in goal focus might actually be related to the complexity of the respective goal.

Apart from the variety of goals that have been investigated in the studies reported above, the studies also differ regarding their methodology and the situations under investigation. These differences reflect on the one hand the large differences in participants’ age and, on the other hand, also the different research traditions. The differences between studies make it difficult to compare and integrate the results into an overarching lifespan account of goal focus. As we have shown in the action perception part in infancy and childhood, even seemingly small changes in setup can have large effects on the results. Given the lack of research directly investigating goal focus in childhood and adolescence, we considered the extant literature that provides a basis for understanding the development of goal fo-
Future Directions

As mentioned throughout the paper, studies explicitly investigating goal focus are scarce and mainly limited to adult development. Thus, we considered diverse literatures which include a great variety of goals to draw conclusions on the development of goal focus. Obviously, this theoretical approach would benefit from an empirical complement with studies that are explicitly designed to investigate goal focus and its influencing factors across the lifespan. To this end, multiple steps are needed. The first important step is to engage in conceptual work by providing a definition of goals and goal focus that can be used for a broad range of goals and across age groups (as we have attempted in this paper). Then, suitable measures with appropriate goals need to be developed. Furthermore, dimensions on which goals differ need to be identified (such as time extension and goal complexity) to systematically investigate their impact on goal focus across and within different age groups. Finally, relevant developmental processes (such as the formation of abstract representations) need to be assessed along with goal focus. Ideally, such an empirical approach would include cross-sectional as well as longitudinal comparisons to answer the following questions: How does goal focus change across the lifespan? How much do these changes vary individually? Which developmental processes contribute to these changes? Which goal dimensions impact goal focus (and how goal specific is goal focus)? Which consequences does goal focus have for development?

On a more general note, we want to stress the importance of research spanning the entire lifespan, including infancy and childhood as well as adulthood and aging. Looking at the different parts of the lifespan separately not only keeps developmental psychologists from seeing the bigger picture of development, but also from gaining valuable conceptual and methodological insights from research in other parts of the lifespan. Therefore, we encourage developmental psychologists to conduct, or at least consider on a theoretical level, lifespan research that actually spans the entire lifespan for understanding age-related changes in goal focus. However, we believe that research including the entire lifespan is worthwhile in that it contributes to a fuller understanding of human development than considering the different life phases separately: Neither does development in adulthood take place without the preceding influences of childhood and adolescence, nor does childhood development take place without the prospect of adult development.

Contributions

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SUPPLEMENTARY MATERIALS

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