



Self-development

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The self is a multifaceted and complex construct. Each facet of the self and the interrelations between them are examined to understand ‘what is self.’ The neurocognitive, social, and cultural mechanisms underlying the development of self as extended in time and as a meaning system are further examined to understand how children come to acquire a sense of who they are. This includes when and how young children attain cognitive self-awareness, remember past experiences and imagine future happenings, and acquire a cultural self. The final analysis focuses on the executive function of the self with regard to how children come to emotionally react to and regulate the self. © 2012 John Wiley & Sons, Ltd.

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INTRODUCTION

The self has been a subject of immense scholarly interest. Evident from both classic and contemporary writings, researchers across neuroscience, cognitive, developmental, social, and cultural psychology have shared a long history in engaging in intense scientific inquiries about the phenomenon of self. Such concerted efforts have led to the contemporary notion that the self is a rich and multifaceted construct. Furthermore, among the many inquiries, understanding of the emergence and development of self has drawn considerable attention. When do the various facets of self emerge and develop? What are the mechanisms involved that allow the human child to acquire a sense of self? Not unlike the complex nature of the construct itself, the emergence and development of the self is a gradual and complex process that entails neurocognitive maturation as well as social and cultural influences. This review focuses on the works that speak to the multifaceted nature of the self and its emergence and development.

A HISTORICAL VIEW ON SELF

As early as in 1890, William James¹ engaged in an extensive discussion on the self, which has served as an important source of reference for contemporary study of the self. Central to this classic view, the

self consists of two fundamental aspects, the self as subject, the I-self, and the self as object, the Me-self. For James, the I-self is the active knower and experiencer responsible for constructing the Me-self, who, in turn, represents the aggregated knowledge of one’s own personal characteristics. James further referred to the I-self as the state of consciousness of oneself—a conceptualization he himself considered rather abstract and complex. Contemporary theorists have attempted to provide more concrete definitions for the I-self. Lewis and Brooks-Gunn² term it as the existential self, which entails the awareness that one exists as a separate entity from others. Harter^{3,4} elaborates that the I-self entails an awareness of one’s internal states, a sense of personal agency over one’s thoughts and actions, a sense of continuity where one maintains to be the same individual across time, and a sense of self as a coherent, bounded, and single entity. On the other side of the token, the Me-self takes on a clearer conceptualization. James considered the Me-self as objectively known to comprise of the material me, the social me, and the spiritual me. The material me encompasses all aspects of material collections and possessions, including one’s physical body, clothes that one wears, and one’s family and home. The social me pertains to the recognition one receives from social others. To James, one has multiple social selves, where one shows a different facet of oneself to different social others: ‘... a man has as many social selves as there are individuals who recognize him, and carry an image of him in their mind’ (p. 294). And the spiritual me is comprised of one’s consciousness, psyche, and

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dispositions that constitute the most enduring part of the self. The Me-self thus constitutes multiple dimensions of personal characteristics.

Since James, scientific inquiries have widely recognized and attested to the complexity and multiplicity of the self.^{3–7} As a result, there has been no single agreed upon precise definition of the construct, nor there exists a unified theory of the self. Nevertheless, researchers have concurred that there are multiple central facets beyond the Jamesian I-self versus Me-self distinction that reflect the basic meaning and function of the self. As Baumeister exclaims,⁸ ‘Self begins with the human body and involves the construction of a definition that entails unity and temporal continuity. Self is an entity marked by reflexive consciousness, interpersonal roles and reputation, and executive function’ (p. 683). Examining each of the central facets and the interrelations between them is required to understand ‘what is self.’

WHAT IS SELF?

A particularly useful theoretical framework to answer this question is outlined by Ulric Neisser,⁵ who conceives of the facets of the self in terms of different forms of information. Like Baumeister,⁸ Neisser suggests that the self begins with the human body, that is, an ‘ecological self’ as directly perceived in relation to the immediate physical environment. The ecological self is specified by primarily kinetic information through perceptual modalities, especially optical structure, which allows us to perceive our physical existence with respect to the environment. This facet of the self is based on online perception and may be present at birth. Cognitively, infants show an early form of self-awareness through a sense of volition over self-generated acts that begins soon after birth.⁹ The self-produced acts enable infants to perceive that they are distinguishable from objects and people that are moving around, acting on, or interacting with them. By 5 months, infants are able to differentiate their own leg movements on videos from those of another infant, suggesting that an early form of visual self-recognition is in place.¹⁰ Furthermore, the ecological self entails a sense of personal agency, which is experienced through actions and interactions that entail contingency responding.⁹ Infants, realizing that they are able to initiate actions and elicit responses from objects and people, develop a sense of personal control over the environment.

Another facet of the self, also directly perceived, is the ‘interpersonal self.’⁵ It is also specified by primarily kinetic information, but only as the self

that is engaged in immediate social interaction with another person. During an interaction, a state of intersubjectivity is established when the nature, direction, timing, and intensity of actions mesh appropriately between the interacting partners. This process is supported by species-specific patterns of emotional rapport and communication. The perceived interactive responses of oneself and the partner then specify the interpersonal self. Just like the ecological self, the interpersonal self is based on online perception and is in place in very early infancy. Newborns as early as 3–96 hours old have been found to decrease their eye contact, show increased distress, and cry longer when the interacting partner displays unresponsiveness in the still-face paradigm.¹¹ When there is certain mismatch between their mothers’ and their own responses, infants 6–12 weeks of age show distress.¹² By 8–9 months of age infants are able to perceive and experience what Stern¹³ labels as affect attunement, that is, whether the infants and the interacting social others are sharing an affect. Such coordinated responses in action and in affect constitute intersubjectivity that is evident in the first year, marking the emergence of the interpersonal self. Developed at around the same time, the ecological self and interpersonal self are rarely experienced as distinct. This is because the same information often specifies their coexistence: The self perceived as being engaged in an interaction (the interpersonal self) is simultaneously perceived as being located in a specific physical space (the ecological self).

Both the ecological self and the interpersonal self are situated in the here and now and do not involve internal self-representations. In contrast, the ‘private self’ entails the reflective representation or understanding that our conscious experiences are only accessible to ourselves.⁵ These conscious experiences may or may not depend on actual experiences, as in the case of inner aspects of perception for the former and dream and imagination for the latter. The private self develops during the preschool years, when children come to recognize the privacy of their mental life. By about age 3, children show knowledge of mental states, which they come to understand as subjective, person-specific and private.¹⁴ By realizing that they have mental states of their own that are different from others,¹⁵ this may be indicative of the emergence of the private self. However, it is not until later in development that children claim authority of their inner self-knowledge. Burton and Mitchell¹⁶ asked 5, 7, and 10-year olds to judge ‘who knows best about yourself’ with questions such as ‘who knows best what you are thinking?’, and ‘who knows best how tired you are?’ It was found that 5-year-olds

and to some extent 7-year-olds tend to cite adults as knowing best, especially if they are parents or teachers, while 10-year-olds cite themselves as the best judge of their inner self-knowledge. Nonetheless, there are individual differences in young children's claim of authority of their inner self-knowledge. Davis et al.¹⁷ found that when compared to children without imaginary companions, 4 to 7-year-olds who have imaginary companions tend to claim themselves to be the best judge of their inner self-knowledge rather than adults. Presumably, having imaginary companions may enhance young children's understanding that the inner self is private.

The self can be further temporally extended in time, hence the 'extended self.'⁵ The extended self is built on autobiographical memory, namely, memory of significant personal experiences from an individual's life. In the process of recalling or recounting what happened, when it happened, who was present and more importantly, inputting an evaluative stance on how one thought, desired, and felt during the experience, one is, in effect, constructing a self that is located in the past.¹⁸ Autobiographical memory serves to define the self and maintains a sense of self-continuity (i.e., self-function), as well as teaches and guides future behaviors (i.e., directive function).¹⁹ Because autobiographical remembering is, more often than not, carried out as part of social sharing, it further serves to build, nurture, and maintain relationships (i.e., social function).¹⁹ Autobiographical memory is not necessarily accurate or true, but a reconstruction to achieve a coherent sense of self.²⁰

One form of memory reconstruction is reflected in the subjective time of past events, where memories of personal experiences can be reexperienced as more recent or distant than they actually were, and this subjective sense of time can influence current self-appraisal.^{21–23} The temporal self-appraisal theory posits that events subjectively experienced as recent are likely to be regarded as part of the current self, while events subjectively experienced as distant are likely to be regarded as part of the former self. At least in the North American cultural context, individuals often perceive past achievements as more recent and past failings as more distant, so as to augment or maintain a positive self-regard.

In addition to extending backward in time, the self can be projected forward in time. In an early inquiry of this facet of self, Markus and Nurius²⁴ discussed the construct of possible selves, which refers to one's thinking of one's potential and the future. Possible selves entail notions of what one might become, what one would like to become, and what one is afraid of becoming. In effect, they represent

fantasies, hopes, and fears that are of personal significance. Possible selves are important because they hold implications for one's future behaviors, such as approaching the possible self as one hopes to be and avoiding the possible self as one fears to be. They also allow evaluation and understanding of one's current self. Situated in the recent surge of literature on future self, it has been found that another important function of the self as projected forward in time is that it plays a role in interpreting and organizing the future that one imagines.²⁵

Similar to autobiographical memory, there is a temporal distance for the future self. Characteristics of the future self vary systematically depending on how far it is in the future. Compared to near-future self, distant-future self is more abstract and structured and predicted behaviors of distant-future self are more in line with general self-conceptions.²⁶ Perhaps more importantly, the self in distant future is more positive than the self in near future.²⁷ Compared to near-future self, distant-future self features higher levels of positive affect, lower levels of negative affect, higher levels of positive traits, and lower levels of negative traits. Furthermore, compared to narratives about the self in near future, narratives about the self in distant future are rated as more positive and comprising more positive and less negative personal attributes and life outcomes. Besides being different depending on temporal distance, the self in the future is also conceptualized differently for self and for others.²⁸ Compared to others' future selves, one's own future self is viewed as a bigger component in defining who one is and is less knowable in the present. Additionally, it is more pertinent for others to know who one is striving to be than for oneself to know who others are striving to be in order to be understood. And because a larger proportion of the self is tied to the future for self than for others, one is further away from one's ideal self than others are from their ideal selves.

The last facet of self in Neisser's framework is the 'conceptual self, commonly referred to as self-concept.'⁵ It refers to our conceptual representations of who we are, including our knowledge about our bodies, our minds, our traits, and our roles in society. Although everyone has a complex set of beliefs about oneself, not all of the beliefs are true. Regardless of truth and accuracy, self-concepts are powerful in shaping one's experiences. The conceptual self is acquired through instructions and observations in the social world. It is based on what we have been told about ourselves socially and our observations of ourselves. According to theorists of the symbolic interactionist tradition, one's self is defined by one's social interactions. For instance, Baldwin²⁹ argued

that one's sense of self grows from one's imitation of the social others with whom one interacts. Mead³⁰ further suggested that one's self takes on the attitude that the 'generalized other' take toward oneself, which is manifested in one's conduct. And in Cooley's³¹ 'looking glass self,' significant others function as social mirrors in which one looks to find out their opinions toward the self. These reflected appraisals, in turn, become part of one's sense of self. These classic works underscored the conceptual self as the self that incorporates the attitudes, behaviors, and values of social others with whom one interacts.

Importantly, reactions in the form of approval and disapproval from significant social others toward oneself may impact the valence of one's self-concept.^{3,4} One's knowledge and concept of oneself is inevitably charged with evaluative meanings and judgments. With descriptions such as 'I am nice,' 'I am smart,' and 'I have a pretty house' as opposed to 'I am mean,' 'I am dumb,' and 'I have a house that is dirty and old,' positive and negative valences are necessarily applied and attached to the conceptual self. Such favorable and unfavorable self-evaluations are rooted in and stemmed from social interactions.

Furthermore, originates from the social worlds, the conceptual self varies across different societies and cultures.⁵ In the last two decades, the self-concepts as independent and interdependent³² have been extensively studied. Independent self is defined primarily by one's unique attributes and qualities, whereas interdependent self is defined primarily by important social roles and relationships. The interdependent self further encompasses the collective self, which refers to the self in relation to in-groups, and the relational self, which is the self in relation to significant others.^{33–36} Most recently, research of the interdependent self has moved toward greater specificity, whereby the self is construed to be interdependent with specific significant others, such as parents and friends.³⁷ It has been maintained that the ultimate goal of human development in any society is to achieve individuation and to establish social connections.^{3,4} Individuals, regardless of culture heritage, thus develop both independent and interdependent self-concepts. Nonetheless, as beliefs and value systems vary considerably across cultures and cultural subgroups, the development and expression of the two kinds of self-concepts tend to be prioritized differently. Cultures that value individuality, which include many Western societies such as the United States, tend to place priority on the independent self. On the other hand, cultures that prize collectivism, such as those in East Asia, Africa,

Latin America, and Southern Europe, tend to give priority to the interdependent self. In a more recent theorization, Kagitcibasi^{38,39} proposed that certain cultural contexts place priority on the development and expression of an autonomous-relational self, where both the independent and interdependent selves are to be highly salient, in order to be adaptive. An example is the immigrant context, where the larger host culture environment values individualism while the home environment may value collectivism that is characteristic of the culture of origin. Consequently, an autonomous-relational self is likely to be emphasized. Because of their powerful explanatory power of cultural variations in developmental and psychological processes, the independent and interdependent self-concepts have been underscored in contemporary cultural psychology.⁴⁰

It is important to note that the conceptual self includes the ideas and experiences of the other four aspects of self.⁵ That is, it includes ideas about the physical body, about social relations and communication, about what one has done in the past and likely to do in the future, and about the meanings of one's thoughts and feelings. The conceptual self can also influence the other four aspects of the self. One's concept of one's body may affect one's physical activities; one's theories of how one relates or should relate to other people may shape one's social behaviors; one's memories of past experiences are in part determined by one's self-concept; and one's interpretation of private experience can be shaped by what one believes experience should be like. In effect, the conceptual self holds all the 'selves' together by providing a coherent theory of the kind of person we are. Thus, although there exists different forms of information that give rise to five cognitively different 'selves,' the self under normal circumstances is experienced as unitary and coherent rather than compartmental or divided.

Recent research has provided a great deal of data concerning the development of the extended self and the conceptual self. When and how do young children come to mentally travel and project themselves backward and forward in time and become a cultural being to function in an adaptive fashion in the environment in which they conduct their daily lives? We now turn to these questions.

THE DEVELOPING SELF

The development of the self involves the interaction between neurocognitive growth and social-cultural experiences, a process that likely holds true in all cultural settings.

The Emergence of the Self

Neurologically, the cortical midline structure has been proposed to be responsible for processing and representing self-knowledge.^{41–43} Specifically, the medial prefrontal cortex and the precuneus and posterior cingulate in the medial posterior parietal cortex are strongly implicated in self-reflection, although the medial posterior parietal cortex is also involved in mental imagery and episodic memory. In particular, the posterior cingulate is involved in the autobiographical context of oneself. In addition, it has been proposed that the left hemisphere of the brain is involved in representation of the self and self-action, whereas the right hemisphere is involved in the representation of other and the self in relation to the other.⁴⁴

Empirical data are in line with the hypotheses. Lewis and Carmody⁴⁴ found that the temporal parietal junction in the left hemisphere was related to self-representational behaviors after controlling for age in infants and young children 15–30 months of age. These findings suggest that neurological maturation is associated with the emergence of self-representations. Studying older children 9–10 years of age and adults, Pfeifer et al.⁴⁵ showed that the medial prefrontal cortex was relatively more active in self-knowledge retrieval than social knowledge retrieval in both children and adults. However, only in children the medial prefrontal cortex becomes significantly activated above resting baseline during self-knowledge retrieval. These findings suggest that as development continues, children exhibit increasing similarities to adults in the neural substrates associated with self-knowledge. Still, differences in the magnitude of activation show that the cortical midline structures are less engaged in children than in adults during rest. It has been speculated that this is either because children are less self-reflective than adults, or that there are developmental changes in the tonic activation of these regions that are independent of mental activities.⁴⁵ Although more studies are needed to test these competing hypotheses and to further understand the brain basis of self, it is clear that neurological maturation is closely associated with the development of mental representations of the self.

Cognitively, a sense of the self as an object of one's knowledge emerges during the second half of the second year.⁹ The hallmark of the emergence of the Me-self is the passing of the mirror self-recognition task. That is, when infants of this age are placed in front of mirrors with their noses surreptitiously dabbed with rouge, they display self-directed behavior like wiping their own nose.² This behavior suggests the presence of an internal representation of one's

stable facial features and the ability to compare it with the mirror image. A study that assessed 10 toddlers biweekly between 15 and 23 months of age found that mirror self-recognition emerges gradually, rather than being a cognitive competence that emerges abruptly.⁴⁶ The presence of this form of self-cognition is regarded as a milestone for the emergence of a cognitive sense of self.⁴⁷ In addition to mirror self-recognition, infants achieve other accomplishments during the second year that collectively mark the emergence of cognitive self-awareness.^{3,48} One achievement of particular importance pertains to language usage that enables the verbal expression and representation of the Me-self. These include the usage of personal pronouns ('me,' 'mine') and the increasing use of self-descriptive statements ('I sit,' 'Mary eat,' 'I do it myself') that reflect an awareness of one's active constituents and capacities. In a study that examined infants and young children at 15, 18, and 21 months, Lewis and Ramsey⁴⁹ demonstrated the relationship between mirror self-recognition and personal pronoun usage, whereby children who could self-recognize used more personal pronoun than those who did not self-recognize. Thus, the idea of 'me' emerges in the human child in the second half of the second year of life. Furthermore, by age 2, many children have come to understand some of their most basic characteristics, knowing, for example, whether they are girls or boys and that they are children rather than adults.

Developing the Temporally Extended Self

The emergence of the cognitive sense of self at around age 2 is considered a prerequisite to the emergence of autobiographical memory.⁵⁰ In search for the origins of autobiographical memory, Harley and Reese⁵¹ found that children's mirror self-recognition at 19 months of age predicted their shared autobiographical memory reports with mothers at 19, 25, and 32 months of age, respectively, even when the effects of language and nonverbal memory were factored out. Self-recognition also predicted children's later independent autobiographical memory report, at 25 and 32 months. Furthermore, early recognizers developed at a faster rate in their independent autobiographical memory than did late recognizers.

The development of the autobiographical stance of self is crucial because it highlights the temporal dimension of the self and helps to build an enduring self-concept. The development of the extended self continues to take place across preschool years. Povinelli and Simon⁵² examined 3, 4, and 5-year-olds' understanding of briefly versus extremely delayed images of the self, using a videotaped version of the

self-recognition task. Children were tested twice. In the first session, children were videotaped playing a game and the experimenter covertly placed a sticker on their head and covertly removed it after the game. One week later, in the second session, children were videotaped playing a different game and a sticker was again covertly placed on their heads. Half the children in each age group were shown the video from the previous week (i.e., extremely delayed condition), and the other half were shown the video recorded 3 min earlier in the second session (i.e., briefly delayed condition). It was found that less than half of the 3-year-olds in both conditions reached up for the sticker. However, most of the 4 and 5-year-olds in the briefly delayed condition reached up for the sticker, but few in the extremely delayed condition did so. These findings suggest that at age 3, children may have developed a meta-representational system that allows them to hold in mind past and future states of the self. However, it is not until age 4 that children are able to link independent instances of the self through time.

Linguistic and social antecedents further contribute to the development of autobiographical memory in the preschool years. Nelson and Fivush⁵³ proposed a social-cultural-developmental theory on the emergence of autobiographical memory, which has been extensively examined.^{54–60} According to this theory, the emerging language abilities allow young children to represent, evaluate, and share past experiences with adult scaffolding. Through participation in memory conversations with adults, preschoolers come to construct coherent and meaningful accounts of the past. During memory conversations, adults' provision of evaluative and causal information and placing the past in emotionally and personally meaningful contexts are particularly important in children's development of a sense of self in the past. Furthermore, during the course of sharing the past with adults, children come to the awareness that what they remember may or may not be the same as what someone else remembers about the same event. Through negotiating such differences and disagreements, children may come to realize that they have a unique perspective on what occurred. In effect, children come to understand the self in the past as differentiated from others, and as continuous with the self in the present. Beyond the childhood years, the further sophistication of cognitive skills and social experiences enable adolescents to construct more comprehensive life stories that integrate thematically and causally related past episodes, which contributes to the formation and stabilization of personal identity.^{61,62}

Turning attention to the other side of the coin, scientific documentation on the emergence

and development of the temporally extended self as projected forward in time is still in its infancy stage. Nonetheless, available conceptual and empirical works have shed some lights on the cognitive and social antecedents to the development of the future self. In their examination of the emergence of future self in children, Atance and Meltzoff⁶³ asked preschoolers to pretend that they were going on trips to various places, such as the mountain and waterfall, and for each place, picked one item from a set of three that they would bring with them. Only one item would be useful in addressing a future physiological state that the self would be experiencing. For example, a lunch, but not a bowl or a comb, would be needed for the mountain trip. Children of 3 years of age picked the correct item above chance level, whereas children of 4 and 5 years of age reached the ceiling level. Furthermore, when asked to explain their choices, 4 and 5-year-olds were more likely than 3-year-olds to make references with a future state of the self in mind. Thus, it appears that by 4 years of age, children are able to mentally project the self forward in time, although 3-year-olds show rudimentary form of this cognitive capacity.

In addition to cognitive growth, parent-child conversation about the future has been postulated to be an important social mechanism to the development of future self. Hudson⁶⁴ argued that during the course of future talk, parents are not just promoting thinking pertaining to what is going to happen, but more importantly, what do children want from what is going to happen and how they feel about it, in other words, their wants, desires, and feelings. In effect, parents are scaffolding children to generate a hypothetical model of self in future time that entails the capacity to influence the course and outcome of future events. Just as parent-child past talk can extend the self from the past to the present, parent-child future talk can further extend the self into the future. Not unlike in the childhood years, parent-adolescent conversations, such as those involving career and related activities, have been regarded to be important for the construction of future selves during adolescence.⁶⁵

Culture has pervasive influences on the extended self. As children develop language competence to engage in memory conversations with their parents, parents in cultures that embrace individuality, such as European Americans, use a high-elaborative, independently-oriented conversational style in which they elaborate on the child's responses and focus on the child's personal predilections and opinions. On the other hand, parents in cultures that embrace connectedness, such as the Chinese, employ a low-elaborative, interdependently-oriented conversational

style in which they frequently pose and repeat factual questions and show great concern with moral rules and behavioral standards with their children.^{66–68} Likewise, when engaging in future talks with their children, Chinese parents are more likely than American parents to engage in didactic talk characterized by moral rules and behavior standards.⁶⁹ Correspondingly, Western children and adults often provide elaborate and detailed autobiographical memories focusing on their own roles, preferences, and feelings. Conversely, Asian children and adults provide relatively skeletal accounts of past experiences that center on social interactions and daily routines.^{70,71} And in their construction of a future self, Chinese children are more likely than American children to expect themselves to behave properly in the future.⁶⁹

Constructing the Conceptual Self

The conceptual self continues to develop following its initial emergence at the end of the second year. In research, it is often assessed by children's descriptions of themselves in response to open-ended questions such as 'who are you.' During the preschool years, children's self-concepts often concern their physical features, possessions, and preferences and typically focus on concrete, here-and-now attributes and observable behaviors. These self-representations tend to be isolated and lacking in coherence.^{3,4} During middle childhood, children show increasing understanding of their less tangible characteristics such as traits and emotions, and show interest in the continuity of the self over time and that people have enduring dispositions.⁷² They use social comparisons more often to understand themselves and to evaluate their skills or talents relative to those of friends or classmates.⁷³ In addition, children of this age show some abilities to coordinate previously compartmentalized self-representations. Adolescents' cognitive abilities lead to more abstract and hypothetical understanding of their inner attributes, personality traits, and personal beliefs. They also show awareness of conflicting attributes within the self, such that a person can be shy in class but outgoing with friends, and are able to integrate different representations into a coherent self-portrait. Thus, as children grow older, their characterizations of themselves become more coordinated, more abstract, more comparative (with peers), and more differentiated based on specific social roles and relational contexts. Their self-evaluations also become more realistic for both their positive and negative attributes.

The influences of culture on self-concept development are evident from the early years on and

continue throughout childhood and adolescence and beyond. One mechanism of cultural influences lies in family socialization, whereby parents in different cultures engage in child-rearing practices that are reflective of the prevailing cultural values, norms, and expectations. Children, in turn, learn to make sense of who they are as situated in the cultural world in which they conduct their daily lives. In cultures that embrace individuality, parents promote an independent socialization agenda, whereas in cultures that prize collectivism, parents espouse an interdependent socialization agenda. Consequently, children acquire a sense of self that places priority on independence or interdependence.

It has been found that parents with an independent socialization agenda, such as the Greek urban middle-class parents, tend to adopt a more distal parenting style when interacting with their infants and toddlers.⁷⁴ This style involves face-to-face contact and object stimulation that encourages the development of autonomy and separateness. In contrast, parents with an interdependent socialization agenda, such as the Cameroonian Nso farmers, tend to assume a more proximal parenting style involving body contact and body stimulation.⁷⁴ This style encourages the development of connectedness, compliance, and obedience. Given the differences in early socialization, toddlers in the Greek urban middle-class families show earlier self-recognition than toddlers of the Cameroonian Nso farmers, who exhibit earlier self-regulation.⁷⁴ Interestingly, in cultures where both independence and interdependence are valued, parents socialize children to develop an autonomous-related self.^{38,39} For example, Costa Rican middle-class parents employ both distal and proximal parenting styles, and their children fall between the Greek urban middle-class children (socialized for independence) and Cameroonian Nso farmers' children (socialized for interdependence) on both self-recognition and self-regulation.⁷⁴

Cultural differences in self-concept socialization and development continue into the preschool and middle childhood years. Wang et al.⁷⁵ found that mothers' discussions of internal states with their 3-year-olds are associated with children's self-descriptions concerning personal attributes, dispositional qualities, and intangible characteristics. Importantly, European American mother-child pairs tend to make more references to the child's internal states than Chinese mother-child pairs. Correspondingly, European American children are more likely than Chinese children to describe their personal and trait characteristics. Examining preschoolers and grade-schoolers' self-constructs, Wang⁷⁰ asked 4, 6, and 8-year-olds to describe themselves. European American children

reported proportionally more statements that reflect personal qualities, attitudes, beliefs, or behaviors unrelated to other people than did Chinese children across the three age groups, with the greatest cultural difference found at age 8. In contrast, Chinese children reported more statements concerning group categories and statements about interdependence, responsiveness to others, or sensitivity to the viewpoints of others than did European American children. Differences were, again, more pronounced at age 8.

In addition to the cognitive aspects of the self as given rise by different forms of information⁵, another important component of the self is its executive function.⁸ This refers to the agentic, intentional aspects of the self that exert control over the environment (including social environment) and regulate itself; it is the 'doer' that is responsible for the actions engaged by the self.^{8,76} We now turn to the discussion of the development of executive function of the self with regard to self-conscious emotions and self-regulation.

THE SELF IN CONTROL

Development of Self-conscious Emotions

The self is subjected to its own evaluation, and manifests in evaluative affects that it experiences toward itself.^{3,4} These affects include the feelings of pride, shame, guilt, and embarrassment, collectively known as self-evaluative emotions or self-conscious emotions. Self-conscious emotions form the basis for self-regulation, which will be discussed later. Lewis^{77,78} maintained that the development of objective self-awareness allows toddlers to become the object of their own consciousness and self-evaluation, through which they come to acquire an initial sense of their competence and conduct. Furthermore, the Me-self allows for the cognitive capacity to differentiate between self and others and consequently, appreciate the standards, goals, and rules set by others (usually the primary caregivers). As toddlers incorporate these standards, goals, and rules, they begin to engage in rudimentary forms of self-evaluation in terms of whether they have performed according to these standards, goals and rules. And such self-evaluation leads to the experiencing of self-conscious emotions. A study that examined self-development in toddlers aged 14–40 months supports this sequence of development, whereby physical self-recognition first appears, followed by neutral and evaluative self-description, and lastly, emotional responses to wrongdoing.⁷⁹ In another study, it was further shown that prior to age 2, infants and toddlers are primarily concerned with their own sense of agency and control over the environment;

slightly before age 2, they begin to anticipate adults' responses to their competence and conduct; and after age 3, they begin to incorporate adults' standards, and evaluate their own performances and responding in affective fashions to their own performance, independent of adults' reactions.⁸⁰

The relationship between self-awareness and self-conscious emotion is observed in the development of specific self-conscious emotions. Lewis et al.⁸¹ found that self-recognition relates to embarrassment in toddlers 15–24 months of age. Kochanska et al.⁸² showed that self-development is positively related to guilt at 18 months, which in turn, is related to moral self, i.e., the self that is sensitive to violations of rules, compliant, empathic, and would apologize, confess, and show various forms of distress following misbehavior of one's own or others', at 56 months.

Although self-conscious emotions are experienced as early as 2–3 years of age, it is not until later in development that children's verbal understanding of self-conscious emotions emerged. Children 4–5 years of age do not show conceptual understanding of pride and shame, although they exhibit appreciation of the valence attached to the two affects; by 6–7 years of age, children show greater understanding of the two affects; and it is only by 8–9 years of age that most children are able to fully articulate the concepts of pride and shame.³

Parental socialization further contributes to the emergence and development of self-conscious emotions. In their study on the emergence of the self-system, Kelley et al.⁸³ found that maternal negative evaluations at age 2 is related to children's shame at age 3 in achievement-related contexts. And across the later childhood years, children show further and gradual development in this facet of self, which entails modeling after their parents. At ages 4–5, children do not mention pride or shame in situations that would elicit them, regardless of whether parents are aware or not of those situations; at ages 5–6, children show first usage of the terms pride and shame, but they are used with regards to parental reactions; at ages 6–7, children are able to report that in addition to parents feeling proud and ashamed of them, they can feel proud and ashamed of themselves; and at ages 7–8, children can feel proud and ashamed of themselves without the presence of parents. This pattern of findings demonstrates that children model the expression and experience of pride and shame after their parents, which they then come to internalize by age 7–8.³ Collectively, the findings point to the significance of parental socialization in the emergence and development of self-conscious emotions in the early and later childhood years.

Development of Self-regulation

As noted earlier, an important function of self-conscious emotions is that they form the basis for self-regulation, where the self modifies its own behaviors or inner states.⁷⁶ The development of self-regulation encompasses compliance, delay of gratification, and generation of socially approved behaviors in the absence of external agents.⁸⁴ Kagan^{85,86} articulated that it is only when children are able to compare their behaviors to standards and rules that they are able to experience self-evaluative emotions such as guilt or shame; and with these negative emotions, they learn to inhibit and regulate their behaviors in the absence of external agents (usually the caretakers). Kopp⁸⁴ charted the specific developmental sequence of self-regulation: Infants and toddlers 12–18 months of age are capable of control, whereby they are aware of social demands, are competent to initiate, maintain and increase behaviors, and to demonstrate compliance. At 24 months, self-control emerges. At this age, self-control entails the competence to delay upon requests, and to behave in accordance to social expectations in the absence of external agents. And approximately at 36 months, more advanced self-regulation develops, whereby children exhibit flexibility of control processes that match the changing situational demands.

Parent–child relationship further influences the development of self-regulation. Parent–child relationship characterized by a mutually responsive orientation (MRO) is predictive of children's internalization of mothers' values and rules.⁸⁷ MRO refers to the relationship between parent and child as positive, mutually cooperative, and mutually binding. In testing a mediation model between MRO, self-representation and self-regulation, Kochanska et al.⁸⁸ found that MRO with both mother and father when child was at 7, 15, and 25 months of age predicted child's self-representation at 38 months. Furthermore, MRO at 7, 15, and 25 months as well as child's self-representation at 38 months predicted child self-regulation at 52 months. However, self-representation

did not mediate the relationship between MRO and self-regulation. In other words, both MRO and self-representation are directly related to self-regulation. These findings suggest that both social and self antecedents are pertinent to the development of self-regulation.

CONCLUSION

Major themes in contemporary self research have echoed those long voiced by William James.¹ The multiplicity of the self and the complexity regarding its emergence and development have led to multiple suites of research, each examining a specific facet of the self. Presently, there has accumulated a great deal of knowledge about the I-self, Me-self, social self, extended self in the past and future, the conceptual self, and how the self evaluates, feels toward and regulates itself. There also exists a good knowledge base with regard to the neurocognitive, social, and cultural mechanisms implicated in self-development.

Nonetheless, some facets of self and their development have been studied less extensively than others, and hence the need for more work. For example, while autobiographical memory development has been of immense interest to researchers in the last 20 years, it is only more recently that attention has been turned to future self-development. Likewise, the neural basis of self-development is only beginning to be understood. Furthermore, the studies of some facets of self, such as autobiographical memory and self-conscious emotions, have focused on the preschool years, late adolescence, and early adulthood. Extending them to the 'missing' or wider age range, for example, into the middle childhood years, can further enrich the understanding of self-development. Importantly, the view that cultures are subjected to changes as a result of migration, urbanization, industrialization, intercultural exchange, and so on^{89,90} would imply further complexity to self and its construction. Future studies may examine the effect of such cultural dynamism on the self and its development.

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