A Blueprint for Social Cognitive Development

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ABSTRACT—The field of social cognitive development (SCD) has historically failed to emerge as a dominant approach in developmental psychology. We take this opportunity to articulate the assumptions, goals, and contributions of SCD with the aim of invigorating research from this perspective. We begin by describing the current landscape of social and cognitive development, suggesting what they have and have not given us. We then outline major goals of the social cognitive developmental approach and walk through examples of successful SCD research. Finally, we examine the unique potential of the social cognitive approach to cross-fertilize social and cognitive development (as well as related fields such as social psychology and neuroscience) and to answer new questions about development.

Over the last 50 years, psychology has become divided into more and more specific subfields. Cognitive psychology is separate from social psychology, which is separate from clinical and developmental psychology. Even within areas, there is often further separation as represented by our many journal clubs, lab groups, and brown bags. Yet recently, the pendulum has begun to swing back, with more research programs and journals devoted to the explicit crossing of traditional boundaries, such as the new work emerging in social cognitive and affective neuroscience. One advantage of these new intersecting fields is that they unite diverse psychologists around common methods, research questions, and terminology, thus producing not only new knowledge, but new knowledge that is accessible to more psychologists. In this article, we argue for the importance of another such integrative field: social cognitive development (SCD).

At present, developmental psychologists live at the edges of a great divide. On one side are cognitive developmentalists, and on the other social developmentalists, each going about their research with differing methods and goals. (Despite often being housed in the same departments, and even within the same areas, there may be little collaboration between the researchers involved in these two lines of work.) In the valley between them sits SCD. In this article, we explain why researchers should venture into that territory and show how this will generate distinct, important knowledge while enriching traditional research in both social and cognitive development. As we will suggest, SCD also provides a bridge to other areas of psychology including social psychology, cognitive psychology, and neuroscience.

At its core, SCD is a field concerned with how mental representations and mental processes relevant to social development change across development. It also involves the study of how these mental representations and processes may mediate or moderate the impact of particular antecedents (e.g., parental input) on children’s outcomes (e.g., well-being). In this article, we describe what makes SCD unique, but we start by sketching, in greatly simplified form, the fields of social development and cognitive development as they currently exist, suggesting how each might benefit from a social cognitive developmental approach. As with any summary such as this, there are research programs that do not fit our general characterizations. Despite this limitation, we intend our summary to serve as a springboard for our later points.

In addition, we emphasize that we are not arguing that one of these fields is superior to the other or that either field should be replaced by SCD. Rather, we would suggest that each of these fields has set out to answer a particular set of questions and has evolved a sophisticated set of methods and statistical techniques to address those questions. We do argue, however, that the methods of each field have limited the kinds of questions it can answer and that only by the full inclusion of a social cognitive developmental approach can we begin to attain a complete picture of development.

Following our descriptions of the fields of social and cognitive development, we set forth the SCD approach, including four research goals. We then provide examples of fruitful SCD research to date, examples of current research topics within social and cognitive development that are prime for the adoption of a more thorough social cognitive developmental approach, and...
points of contact between research in SCD and other areas of psychology.

**SOCIAL DEVELOPMENT**

Much of the study of social development at the beginning of the 21st century focuses on antecedents (e.g., parental practices, social or cultural contexts) of child outcomes (e.g., social, psychological, and academic well-being; Damon, Sigel, & Renninger, 1998). Social developmentalists often undertake large-scale, correlational studies that typically occur in field settings, taking advantage of the natural variations in social input or context to determine how these factors affect children's well-being. They study a range of outcomes including social relations, identity, emotion- and self-regulation, and achievement, as well as the effects of parental, academic, or cultural influences on these developmental outcomes. Because many variables of interest, such as parental abuse, divorce, school experience, or culture, cannot be manipulated, these researchers apply statistical techniques to patterns of change over time to infer causation.

This field represents an enormously valuable tradition in terms of the research questions it addresses, with their emphasis on outcomes that are central to children's lives. However, current research often pays too little attention to the role of mental representations or underlying social cognitive processes that may lead particular groups of children with similar experiences to function better than others. We too rarely gain knowledge about what children are taking away from a socialization experience in the form of beliefs, attitudes, or attributions, and how they may bring these mental representations to bear in new situations in the future. Until the role of mental representations and processes are recognized and understood, we cannot fully understand the social phenomena of interest or the development of these phenomena.

An example of traditional social development research is the study of the relationship between maternal depression and children's school performance or behavior (Anderson & Hammen, 1993; Chronis et al., 2007; Forehand, Long, Brody, & Fauber, 1986; Goodman, Brogan, Lynch, & Fielding, 1993; Petterson & Albers, 2001; Wright, George, Burke, Gelfand, & Teti, 2000). Although such a topic is interesting and the results are provocative, studies on this topic often fail to capture the precise process by which children's school performance is influenced by (and influences) maternal depression, in large part because researchers have often failed to examine the mediating social-cognitive variables or processes. The reader leaves without understanding how parental depression influences children's school performance. Adding a social cognitive developmental approach would introduce questions about the attitudes, beliefs, or attributions children take away from experiences with maternal depression that contribute to poor outcomes. For example, Pomerantz, Grolnick, and Price (2005), taking a more social cognitive developmental perspective, demonstrate how parenting can affect children's perceptions of competence and how those perceptions go on to impact achievement.

Other important examples of the critical role of children's mental representation in social development are found in studies of the effects of domestic violence (e.g., Grych, Jouriles, Swank, McDonald, & Norwood, 2000) and sexual abuse (Feiring, Taska, & Lewis, 2002). These studies show that the attributions children learn as a result of these negative events play a key role in their subsequent well-being. Those who adopt negative attributions about the self (tending more toward self-blame) or negative attributions about others (tending to impute hostile intent to others’ actions) fare more poorly than those who do not develop these negative attributional tendencies. Thus, it is when we examine the mental representations that children bring to subsequent events that we gain a better understanding of the impact of antecedents on subsequent child outcomes.

**COGNITIVE DEVELOPMENT**

In contrast to social development, much of the current work in cognitive development investigates how cognition operates in infants and children and when specific cognitive abilities arise. Researchers in this field are interested in young children's basic cognitive skills, including how children understand and represent numbers, space, objects, events, and other people. This approach relies on tightly controlled laboratory studies, which focus on the mental representations children form and the cognitive processes they engage in as they confront precisely specified objects and events.

We believe that the cognitive developmental approach can contribute to the emerging field of SCD through its use of controlled studies, its analysis of mental processes, and its focus on mental representations. Continuing in their research traditions, some researchers in cognitive development have begun investigating social variables. For example, there is much current research on theory of mind and perspective-taking and on the perception of agency, animacy, and intention that focuses on examining young children's understanding of the social world (Gergely, Nadasdy, & Csibra, 1995; Gopnik & Wellman, 1992; Johnson, Booth, & O’Hearn, 2001; Kuhlmeier, Wynn, & Bloom, 2003; Leslie, Friedman, & German, 2004; Moll & Tomasello, 2006; Woodward, 1998).

However, although cognitive developmentalists have begun showing an interest in social phenomena, they have been less concerned with what children's emerging cognitive skills, social understanding, and social representations might mean for their social, psychological, and academic well-being in the world outside the laboratory. Specifically, researchers in this tradition have generally been less interested in (a) how children may differ from each other in their representations, processing, and understandings, (b) why children may differ from each other, or
why they might form different representations, develop different processing strategies, and arrive at different understandings, and (c) what implications these differences might have for children's well-being. For example, work on understanding intentions and goals during infancy has not yet begun asking questions about what this understanding or the lack of understanding means for the child. How does one's environment or context influence the development of intentional or goal-directed understanding? Does learning to understand goals earlier affect one's later life in meaningful ways? As described below, these are the kinds of questions an SCD perspective could answer, giving us a deeper understanding of these phenomena.

WHAT IS SCD AND WHY STUDY IT?

SCD is not new and does not originate with us (e.g., Aboud, 1988; Bigler & Liben, 1990; Bussey & Bandura, 1999; Dweck & Elliott, 1983; Gergely et al., 1995; Jacobs, Lanza, Osgood, Eccles, & Wigfield, 2002; Karaffantis & Levy, 2004; Killen & Stangor, 2001; Martin, Ruble, & Szkybalo, 2002; Tomasello, Carpenter, Call, Behne, & Moll, 2005; Wimmer & Perner, 1983; Woodward, 1998). Over the years, several prominent SCD theories and books have emerged, and although some have made a conscious attempt to encourage collaboration across the traditional boundaries of social development, cognitive development, and social psychology (Bandura, 1986; Colby & Kohlberg, 1987; Higgins, Ruble, & Hartup, 1983), they have failed to capture large enough audiences to make SCD one of the dominant approaches in developmental psychology. For this reason, we hope this article will serve as a call to current social and cognitive development researchers, to researchers at the boundary of this field such as social and personality psychologists, and to young psychologists in the process of forming their professional identities.

SCD, as we have noted, is the study of the relationship between antecedents (e.g., parental practices, social or cultural contexts), the resulting mental representations\(^1\) (e.g., attitudes, beliefs, and attributions), and the ensuing child outcomes (e.g., children's social, psychological, and academic well-being) over the course of development. It is also the study of the normative development of mental representations/processes and their impact on social outcomes. So, for example, if we know that most or all children undergo a change in their cognitive processes or mental representations at a particular point, we can study the ramifications of that change for how children function in the social world.

Like cognitive development, SCD is the study of children's processing and understanding of the (social) world across development. Like social development, SCD cares deeply about the social antecedents of children's representations, as well as the consequences of those representations for children's social, psychological, and academic well-being. It is important to note that our conception of the field of SCD and our discussion of SCD throughout this article concerns the field of SCD and should not be confused with a specific theory such as Bandura's (1986) social cognitive theory.

In terms of its methodological approach, SCD, like cognitive development and adult work on social cognition, is concerned with analyzing or distilling specific mechanisms, processes, and mental representations and then testing the impact of individual variables in the laboratory. However, like social development, SCD is concerned with how those variables function in the real world as well. Whereas laboratory studies isolate variables, manipulate them, and test causation directly, field studies test hypotheses in ecologically valid ways to determine how the variables act within real social contexts. Thus, SCD benefits from adopting aspects of both approaches and ultimately gives us that which neither field contributes individually—an understanding of normative and idiographic SCD with attention to mental processes and representations in lab and field settings.

In sum, SCD—focusing on the relationship between antecedents, mental representations, and outcomes—combines features of both the cognitive and the social development approaches. With this in mind, we articulate four goals that have previously remained implicit in SCD research. These goals can serve as a framework for future research programs in SCD and will help the field gain both a broader and deeper understanding of socially relevant processes.

1. Identify and measure a social cognitive mental representation or process that is believed to be important in development. Sometimes investigators may begin with an interest in a particular mental representation or process, and sometimes they might begin with an outcome and form hypotheses about the mental representations that foster that outcome. In either case, specification and measurement of the mental representation or cognitive process is a major goal. In addition, understanding how that mental representation changes across and affects development is a crucial aspect of studying SCD.

2. Manipulate the mental representation, and observe its impact on outcomes of interest over development. Once a mental representation is isolated, it is important for researchers, when appropriate, to manipulate that mental representation to show how that manipulation changes important aspects of children's personal or social functioning. This manipulation can sometimes take place in the real world, as when we ask whether changing children's beliefs or attributions can change their aggression or achievement in natural settings, or it can take place in a laboratory setting, where we can experimentally manipulate these representations and pro-

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\(^1\)Throughout this article, we discuss how children process and mentally represent their experiences, and therefore we emphasize the input children receive. However, it is important to note that, as other researchers have pointed out (e.g., Bell, 1979), it is the children's own actions that shape the input they receive, and this should not be seen as a one-way relationship.
cesses through intervention or training studies and observe their impact on behaviors that represent personal and social functioning. Researchers also need to pay close attention to whether developmental changes in mental representations and processes result in changes in behaviors or outcomes.

3. Investigate the antecedents of the mental representation or process of interest. Research from a social cognitive developmental perspective should examine the impact of both real-world antecedents, such as parental input, and laboratory-based antecedents, such as exposure to patterns of input or feedback that might simulate parental input, on mental representations. In this way, it can also help us understand when (under what circumstances and at what points in development) particular experiences might affect social cognitive processes and mental representations and when they might not.

4. Compare how the mental representation operates in the laboratory and in the real world. To ensure that one is modeling real-life processes in the laboratory, it is important to understand how the mental representations operate both within a controlled setting and within the dynamic social world and to explain any resulting differences.

These goals are merely that, and, as will be discussed, may be harder to fulfill in some areas than others.

Examples of Current SCD Research

We turn now to a few examples of work that has benefited from a social cognitive developmental approach. For each area of research, we briefly summarize the literature, specify what has been gained by employing a social cognitive developmental approach, and explain how this research program has met many of the goals we have laid out above. These examples are not an exclusive list; rather, they are clear examples selected to demonstrate how social cognitive development contributes above and beyond traditional social or cognitive approaches.

Aggression

The work conducted by Dodge and his colleagues stands as an example of successful SCD research. Dodge and Frame (1982) identified and measured a key social cognitive mediator of aggression: children's hostile attributional bias—a tendency to attribute hostile intent to another under circumstances of ambiguous provocation (Goal 1). They found that rapid and inappropriate aggressive retaliation in the face of an ambiguous provocation stemmed substantially from the aggressive child's hostile attributional bias. After showing that the hostile attributional bias was a predictor of aggression in a laboratory setting (Dodge & Frame, 1982), researchers then showed that this bias was a cause of aggression in the real world as well (Goal 4). For example, Graham, Hudley, and Williams (1992) found that students identified by teachers and peers as aggressive were more likely than nonaggressive peers to perceive hostility in ambiguous action, feel anger in response to those actions, and endorse hostile reactions in response to ambiguous actions. In addition, hostile attributions appear to mediate increases in aggression over time (Zelli, Dodge, Lochman, & Laird, 1999) primarily by creating greater accessibility of aggressive responses.

Dodge and his colleagues have also examined the developmental antecedents of the hostile attributional bias (Goal 3). For example, it was shown that several types of negative childhood experiences, such as physical abuse (Dodge, Pettit, Bates, & Valente, 1995), harsh discipline (Weiss, Dodge, Bates, & Pettit, 1992), and peer rejection (Dodge et al., 2003) resulted in increases in the tendency toward hostile attributions, supporting the idea that harsh treatment can shape the mental representations that children carry with them to future situations.

Finally, Hudley, and Graham (1993) showed that changing aggressive children's attributional tendencies had the effect of reducing their aggressive retaliation both in the laboratory and the classroom (Goal 2), supporting the idea that social-cognitive variables not only play a key causal role in social behavior, but that they also provide a guide to effective intervention.

Many developmental questions remain. For example, at what age do children begin to process information from the environment in a way that promotes hostile attributions? Do temperamental factors predispose some children to develop hostile attributions more readily than others? Despite unanswered questions, this example nicely illustrates the importance of an SCD approach. Although knowing that negative childhood experiences lead to aggression in children is interesting, it is only through Dodge's social cognitive approach, and in particular the examination of specific mental representations, that we are able to better understand how this process works.

Achievement Motivation

Before the social cognitive developmental approach, achievement motivation was viewed as a trait. Some children were believed to have a large amount and some were believed to have a small amount, but where achievement motivation came from and how it operated remained largely a mystery. However, research within SCD has now shown that mental representations play a central role in achievement motivation, and has given us insight into how achievement motivation operates, how environments may foster it, and how interventions may change it.

More specifically, researchers have identified children's self-theories, particularly their theories about their intelligence, as key factors in achievement motivation processes (Goal 1; Butler, 2000; Dweck & Leggett, 1988; Pomerantz & Ruble, 1997). First, they have found that children who represent intelligence as a fixed quality rather than a malleable one have different goals (to look smart vs. to learn), make different attributions for their setbacks (lack of ability vs. lack of effort), and therefore show different reactions to difficulty.
(helpless vs. mastery-oriented; corresponding with Goal 2; see Dweck, 1999).

Next, research has examined the developmental course (Cain & Dweck, 1995; Heyman & Dweck, 1998; see Dweck, 2002, for a review) and the antecedents of children's theories of intelligence (Goal 3; Kamins & Dweck, 1999; Kemper & Pomerantz, 2003; Mueller & Dweck, 1998). As an example of the former, Heyman, Dweck, and Cain (1992) and Heyman and Dweck (1998) demonstrated that these patterns of achievement motivation are rooted in young children's theories about their goodness (fixed vs. malleable)—being that goodness is a focus of socialization at that age. As an example of the latter, experimental laboratory studies have shown that when adults praise children for their intelligence (person praise)—as opposed to praising them for their effort or strategy (process praise)—they foster the fixed-intelligence theory with its goals, attributions, and response to difficulty (Kamins & Dweck, 1999; Mueller & Dweck, 1998). Moreover, this antecedent process has been shown to operate in the real world—parents who deliver person praise rather than process praise have children who adopt the fixed versus malleable theory of intelligence (Goal 4; Kemper & Pomerantz, 2003).

Finally, this social-cognitive variable has been shown to operate in the real world. Blackwell, Trzesniewski, and Dweck (2007) have shown that children's theories of intelligence predict their grade trajectory over time (see also Stipek & Gralinski, 1996), and that an intervention that changes children's theories of intelligence alters their motivation and achievement (Goals 2 and 4; see also Good, Aronson, & Inzlicht, 2003; cf. Aronson, Fried, & Good, 2002). Thus, the identification of a social cognitive variable opened the door to a fuller understanding of the origin and workings of achievement motivation in a way that was not done prior to the social cognitive developmental approach.

Future research on achievement motivation can continue in using these four goals: for example, asking what other factors determine whether children develop a fixed versus malleable theory of intelligence and whether different manipulations of these theories are more or less effective at different points in development. Much research in adult social cognition has found that similar beliefs play a role in adults' functioning for example, in achievement settings (Hong, Chiu, Lin, Wan, & Dweck, 1999) and relationships (Beer, 2002). Future research could investigate the ways in which these processes may function differently in children and adults, as well as the ways in which childhood beliefs do or do not predict adult ones.

**Gender**

Not all antecedents, social-cognitive variables, or outcomes are amenable to experimental manipulation. For example, abuse and divorce are not possible or ethical to manipulate. Yet, if researchers can distill the mental representations that result from these real-world experiences, they can focus on studying these representations to better understand how experiences operate to produce their outcomes.

As another example, researchers cannot manipulate gender, nor would it seem wise to tamper with the development of children's gender identity. However, researchers are making great progress in understanding children's developing representations of gender in early childhood and how these representations affect children's behavior.

Before the social cognitive developmental approach to gender, it was assumed that sex-typed behavior was influenced solely by a child's history of reinforcement and social learning. However, cognitive developmental theorists (Kohlberg, 1966) and social cognitive developmental theorists (Martin & Little, 1990; Martin & Ruble, 2004) began to suggest that sex-typed behavior was notably influenced by children's self-representations—that is, by their categorization of themselves as a girl or a boy (corresponding with Goal 1). This meant that self-representations could have motivational properties, and that children's gender-related motivation was not simply a result of the contingencies programmed by socialization agents.

There is now wide agreement that categorizing the self according to gender ushers in an upsurge in children's sex-typed behavior (Martin et al., 2002). By measuring children's beliefs about gender and mapping them on to sex-typed behavior, researchers have been able to show a link between the two (Goal 2; Fagot & Leinbach, 1989; Martin & Little, 1990). Moreover, it appears that sex-typed behavior increases with first use of gender labels (Zosuls, Ruble, Tamis-LeMonda, Haddad, & Greulich, 2006), with the onset of gender self-labeling (Zosuls et al., 2006), and with changes in gender self-representation from identifying oneself as a boy or girl to realizing that one's sex is stable over time (Martin & Little, 1990).

In addition to monitoring the development of gender self-representations, researchers have examined their environmental antecedents (Goal 3). For example, Fagot and Leinbach (1989) found that parents of early gender self-labelers paid more attention (positive or negative) when their children played with sex-typed toys, perhaps communicating that gender is an important dimension. In addition, in an experimental study, Bigler (1995) demonstrated that when teachers made functional use of gender categories, children's gender stereotypes increased.

Bigler has also conducted research aimed at the issue of the "manipulation" of gender categories. Although, of course, gender per se cannot be manipulated, Bigler has borrowed methods from social psychology (e.g., Sherif, Harvey, White, Hood, & Sherif, 1961) and attempted to mimic categories like gender by creating novel groups and exploring which factors are necessary for the development of biased attitudes and discrimination. To further this goal, Bigler has manipulated factors such as teacher's functional use of category labels, the majority or minority status of a group, and the previous social status (high vs. low status) of the group (Bigler, Brown, & Markell, 2001; Brown & Bigler, 2002). She conducts these studies in the context...
of actual summer school programs, meeting our fourth goal of examining these processes in the real world. Thus, even when a variable cannot be manipulated in the laboratory, social-cognitive variables can be pinpointed, their effects monitored, and their antecedents identified.

Using a Social Cognitive Developmental Approach in New Areas

Our hope is that, in addition to the SCD work currently being done within the confines of either social or cognitive development, additional research in SCD can be conducted by building bridges between these two fields, as well as between SCD and such fields as neuroscience and social cognition. Below, we describe recent, current, and future research that integrates social and cognitive development or connects SCD with other fields. The studies mentioned are, again, by no means exhaustive, but they are examples that we believe capture the spirit of our proposal.

One way in which social and cognitive development can begin speaking to one another is to integrate methods from one area with research questions of another area. For example, social developmentalists in the area of attachment have long proposed, following Bowlby (1958), that infants form internal working models of relationships based on their early experiences with caretakers. Yet little has been done to specify or measure these representations of relationships in young children. Indeed, mental representations are difficult to capture in young children because of their limited response repertoire. However, new work by Johnson and colleagues has applied a traditional cognitive development method (measuring young infants’ looking time) to this traditional social development question to examine whether securely and insecurely attached infants have different internal working models of attachment (Johnson, Dweck, & Chen, 2007). This study involved exposing young infants to a video in which a large sphere (the parental icon) moved up a hill and away from a smaller sphere (the child icon), who remained the bottom of a hill. (These abstract forms were used to test for a more generalized relationship representation that went beyond the infants’ particular relationship with their caretaker.) As the parental icon moved away, the child bounced, pulsed, and began to wail. This event was shown repeatedly until children became bored and showed sharply reduced looking time. Then, on the test trials, the infant was shown the parent either returning to the child or continuing to move away. The data indicated that the securely attached infants looked longer (showed violated expectations) when the parent continued to move away from the child than they did when the parent returned to the child. On the basis of much infant cognitive development work, we can suggest that these infants had expected the parental icon to return to the crying child and were surprised (i.e., showed renewed interest) when it did not. In contrast, the insecurely attached infants showed no such expectation and in fact tended to look slightly longer when the parent returned to the crying child.

This work nicely demonstrates that young children have an internal representation of the way parents and children interact, and it has therefore tested a theoretical claim of central importance to social development by employing a key method of cognitive development research. In this way, we hope that researchers in other areas of social and cognitive development will begin to see possible connections between their work and current work in the other field.

Another way to integrate the ideas of social development with those of cognitive development is to combine research questions and theories from both fields. For example, cognitive developmental work on goals and intention can be broadened, perhaps in combination with other work on theory of mind, to ask how children represent people and their motivations, ideas, emotions, and knowledge. Following the goals we laid out above, we can then ask how differences in understanding goals or intentions affect children’s social, psychological, and academic well-being across development.

In a related vein, bridges are being built between cognitive developmental work on the impact of language that expresses generic kinds (e.g., “birds fly,” which implies universal and enduring qualities) and social development work on how such usages can affect the development of gender stereotypes (Gelman, Taylor, & Nguyen, 2004) or self-perceptions (Cimpian, Arce, Markman, & Dweck, 2007). This work asks whether children’s understanding of generic kinds, originally studied in nonsocial contexts, might have important implications for social understanding and social development.

Finally, work in cognitive development on statistical learning suggests that children can represent the statistical properties of language input (Saffran, Aslin, & Newport, 1996) and visual input (Kirkham, Slemmer, & Johnson, 2002). It would be fascinating to know whether children similarly represent the statistical properties of their social input. The research on internal working models of relationships may suggest that they do, but adopting the paradigms from language and cognitive development may allow us to track the more precise ways in which infants process and represent social input.

Even in areas of social and cognitive development that do not have a clear partner on the other side of the valley, there is much room for researchers to adopt an SCD approach. For example social development work on self-regulation has focused on what we are calling antecedents and outcomes, and it could benefit from a better understanding of the role of children’s mental representations. Indeed, as shown by the classic work of Mischel and his colleagues (e.g., Mischel, Ebbeson, & Raskoff Zeiss, 1972), children’s ability to delay gratification can be dramatically affected by the manner in which they represent the desired object. This may lead us to ask how socialization practices known to affect self-regulation (e.g., high discipline or low maternal warmth; Colman, Hardy, Albert, Raffaeelli, & Crockett, 2006) may affect the representational processes children recruit
to aid their self-regulation. Such a question is one that social cognitive developmentalists might well pursue.

On the cognitive development side, one theory that has had little impact on social development but that could have a large impact on SCD is that of core knowledge. This is a thesis put forth by Spelke and colleagues (Spelke, 2003; Spelke & Kinzler, 2007) that some human cognitive capacities are innate and domain-specific, including core knowledge of objects, actions, space, and number. Such a thesis is extremely relevant to SCD, as researchers can begin to ask what social cognitive abilities might be early emerging and domain-specific. There is emerging work with infants and toddlers suggesting the possibility that very young children might have core knowledge of morality as evidenced by what looks like early concepts of moral goodness and badness. The early evidence includes infants’ and toddlers’ attributions of goodness and badness to helpful agents versus harmful ones, their preference to accept a toy from a safe adult versus a harmful one, and their close visual attention to harmful agents over helpful ones (Hamlin, Wynn, & Bloom, 2007; Nurock, Jacob, Margules, & Dupoux, 2008). If these findings continue to hold and are supported by additional findings with even younger infants, they might pose the idea of innate or early-emerging social cognitive mechanisms and processes that are in place even before the antecedents traditionally studied by social developmentalists.

Finally, although the theory-of-mind research program within cognitive development has, in our opinion, come close to meeting the four goals outlined above, we believe more can be done to meet these goals. For example, research has specified the social cognitive representations associated with different aspects of theory of mind (Goal 1), showing, for example, that autism causes a deficit in the shared-attention mechanism (i.e., the mechanism that represents the fact that the self and another person are attending to the same stimulus) and that this has downstream social consequences for such things as how people with autism interact with others (Goals 2 and 3; see Baron-Cohen, 2001, for a review). In addition, researchers have demonstrated that even after training autistic children on mental state understanding, children with autism still fail other tasks, such as conversational ability and the use of mental state terms in speech, which are thought to be downstream consequences of theory-of-mind failures (Hadwin, Baron-Cohen, Howlin, & Hill, 1997). Although there is much good empirical research and theorizing—for example, asking at what age children begin to demonstrate theory of mind (a controversy still brewing, see Leslie, 2005; Onishi & Baillargeon, 2005; Ruffman & Perner, 2005; Wellman, Cross, & Watson, 2001) or what mechanism might underlie theory of mind (Gallese & Goldman, 1998; Gopnik & Wellman, 1992; Saxe, 2005)—less research has been done on the input or experiences that foster theory of mind or on the impact of individual differences. For example, how might earlier or later theory-of-mind development affect subsequent social outcomes within the normal range? Thus, additional work could examine what factors besides autism spectrum disorders predict early or late theory-of-mind development, how manipulations of theory of mind processes (e.g., teaching an aspect of theory of mind and monitoring its consequences) might impact individuals’ social functioning, and how theory of mind is involved in social functioning outside the laboratory environment.

SCD not only involves building bridges between social and cognitive development, but it also allows researchers interested in the development of social representations and processes to find connections with other areas of psychology. For example, SCD researchers could quite easily connect with current work in adult social cognition; they could ask about the development of processes and mental representations that are already well documented in adults, or they could ask how early developing social cognitive representations might change or remain stable into adulthood. There is some research on attitudes that is already beginning to make these links (Dunham, Baron, & Banaji, 2006; Olson, Banaji, Dweck, & Spelke, 2006; Rutland, Cameron, Milne, & McGeorge, 2005). In addition, some researchers studying judgment and decision-making are beginning to build theoretical and empirical connections with SCD research (e.g., Epley, Morewedge, & Keysar, 2004). For example, Royzman, Cassidy, and Baron (2003) argue that common judgment and decision-making “curse of knowledge” biases are building on the same types of perspective-taking problems we see in young children’s developing theory of mind (similar arguments have been made by Susan Birch and colleagues; e.g., Birch & Bernstein, 2007). Other connections can readily be made with work on representations of self that contribute to identity and self-esteem, representations of social norms, or representations of others that contribute to interpersonal or intergroup attitudes and behaviors.

In addition, after documenting the mental representations and mental processes that affect behavior, researchers can begin to use additional techniques, such as neuroscience techniques, to examine these representations and processes. This field is just beginning to bloom, as evidenced by work studying theory-of-mind development using functional magnetic resonance imaging in children and adults (Kobayashi, Glover, & Temple, 2007; Saxe, 2006; Saxe, Carey, & Kanwisher, 2004) and by work examining emotion understanding in children with and without autism (Dapretto et al., 2006). In the past, it would have been difficult to connect social development work with emerging neuroscience work because the processes involved were not specified in a manner that is amenable to neuroscientific as-

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2The phrase “the curse of knowledge” refers to a set of situations in which people have knowledge that leads them to make inaccurate evaluations. For example, the false consensus effect refers to a bias in which people tend to believe that their opinion on an issue is more common than it actually is, and the hindsight bias involves situations in which people experience events and then believe that those events were more predictable or inevitable than they actually were (what can be thought of as the “I knew it all along” effect).
assessment. With advances in the measurement of mental representations and processes, this bridge between SCD and neuroscience can more readily be made.

In summary, we have called attention to the promising opportunities awaiting us in the field of SCD. We have proposed a series of goals for this approach, provided examples of current work in this field, and suggested some areas that are prime for the introduction of social cognitive developmental research. Most important, we look forward to the many new research questions that will inevitably arise from this field as it grows and matures.

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