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Social Cognitive Abilities and School Experiences of Young People
Theory and Evidence

"… education is a leading out what is already there in the pupil's soul." (Spark, 1962/2009, p. 36)

Introduction

This chapter provides a critical overview of developmental and educational theoretical frameworks that aim to explain social and emotional growth in young people. In addition, I will address the recent applied neurocognitive research's interest in the transition between middle childhood and adolescence, and how this guides empirical research and neuroeducational programs.

Research

The maturation of social cognitive research

In the quarter-century that followed the first wave of developmental social cognitive science of the 1970s and 1980s, human resilience science has expanded and matured, becoming more global and multidisciplinary in scope. Advances in the measurement of genes and biological processes have also boosted research on the neurobiology of resilience. Models, methods, and findings have become more dynamic and more nuanced with a focus on multiple levels of analysis. And finally, as international and multicultural social cognitive research has gained traction, global perspectives on resilience have emerged and stimulated

the need to constantly review and refine developmental theory and research methods. Key changes are highlighted in the next section.

Resilience and social cognitive research in developmental science has deep roots in research and theory in child development, clinical sciences, and the study of individual differences (Luthar, Barkin, & Crossman, 2013; Masten, 2014a, 2014b). The history of research on resilience is closely tied to the history of developmental psychopathology (see Masten, 2014a; Moffitt, 2006), and the relational developmental systems theory (RDST) and evolutionary developmental systems theory that infuses this integrative approach to understanding variations in human adaptation over the life course (Del Giudice, 2014; Lerner, Lerner, Von Eye, Bowers, & Lewin-Bizan, 2011; Mueller, 2014; Overton, 2013).

Over the decades since the science on resilience in children began, the conceptualization of the construct grew more dynamic and reflected a broader systems transformation in developmental science (Lerner et al., 2011; Mueller, 2014; Zelazo & Lyons, 2012). This relational developmental systems framework (RDST; Overton, 2013) integrated ideas from developmental systems theory (Lerner et al., 2005), ecological-developmental systems theory (Bronfenbrenner & Morris, 2006; Del Giudice, 2014), family systems theory (Bretherton, 2010), biological systems (Kim & Sasaki, 2014), and developmental psychopathology (Cicchetti, Toth, & Handley, 2015; West-Eberhard, 2003). Contemporary systems models assume that many systems interact or "co-act" to shape the course of development, across levels of function, from the molecular to the macro levels of physical and sociocultural ecologies.

The resilience of an individual over the course of development depends on the function of complex adaptive systems that remain in constant interaction and transformation. As a result, the resilience of a person remains fluid and dynamic and enables an individual to remain flexible within, and adapt to, multiple interacting systems and contexts. Many of the widely observed protective factors for individual resilience in children reflect adaptive systems shaped by biological and cultural evolution (Del Giudice, 2014; Masten, 2014a, 2014b).

Research has suggested that protective factors that strengthen one's emotional resilience include the development of close and secure attachment relationships, reward systems and mastery motivation, intelligence and executive functions, and forms of cultural belief systems and traditions including religion (Masten, 2014a, 2014b). Each of these adaptive systems are considered at various levels of analysis from multiple disciplinary perspectives, including anthropology, biology, ecology, economics, psychology, and sociology. Thus, overall, multilevel dynamics or processes that link levels of function within and across systems hold considerable interest in resilience theory.

For example, there remains great interest in the processes by which adversity is biologically embedded and mitigated (Kim & Sasaki, 2014); researchers are interested in how violence at the community level influences family function and thus may cascade to affect children (Main & Solomon, 1990). Other resilience researchers explore how good parenting influences the development of executive function skills in children at the neural and behavioral levels (e.g., Masten, 2014a).

In addition, research on environmental or ecological disasters underscore the interdependence of individual, family, and community systems, as well as biological, physical, and ecological systems across levels (Masten, 2014b). Large-scale catastrophic life events like

the 2006 hurricane in the United States, or the 2011 tsunami in Japan, challenge or may impair many adaptive systems simultaneously across large areas and groups of people. Consequently, recovery and growth can take some time, and adequate preparation for disasters usually requires an integrated perspective with consideration of multiple, interdependent systems.

Why emerging adolescence?   Recently, the academic discourse of middle to late childhood and early adolescence has become increasingly complex and multivoiced (Blakemore & Mills, 2014; Del Giudice, 2014; Siegel, 2013). The assumptions that underlie the developmental period known as emerging adolescence help shape teaching practices, curricular decisions, and social roles. However, such discourse has the potential to construct "terministic screens" that may homogenize students, and may render many of their behaviors invisible to school personnel and researchers. As Burke (1990) explains, terministic screens work like multicolored photographic lenses to filter attention toward and away from a version of reality: "Even if any given terminology is a reflection of reality, by its very nature as a terminology it must be a selection of reality; and to this extent it must function also as a deflection of reality" (p. 1035).

  Researchers have suggested that in addition to biological and physical changes such as adrenarche (Del Giudice, Angeleri, & Manera, 2009; Geary, 2010), students' gender stereotypic beliefs may also help explain gender differences in academic self-belief (Bosacki, 2015) and peer relations (Hughes & Devine, 2015). However, given the complexity of the social world of older children and emerging adolescents, research on why girls and boys may view self-confidence and competencies in multiple contexts through different lens remains sparse (Rose & Rudolph, 2006). For example, recent findings suggest that stereotypic gender-role and cultural expectations may influence emerging adolescents' developing sense of self and their social relations. Furthermore, the lack of attention on sociocultural issues in developmental social cognitive science advocates the need for the exploration of sociocultural influences such as race, ethnicity, and gender (Hyde, 2014). In Chapter 8 I will discuss the role of gender and culture in social cognitive development among emerging adolescents.

Why is social cognitive development in emerging adolescence special?   Over the past decade, psychoeducational research has come to envision older children and adolescents as interpretive psychologists who depend upon a mentalistic construal of reality to make sense of their social world (Blakemore & Mills, 2014; Bruner, 1996). This psychocultural approach to education provides a new framework in which to investigate the phenomenon of adolescents' social understanding or social cognition, including studies that explore: "theories of mind" (Astington, 1993; Byom & Mutlu, 2013), various aspects of the "self" (Harter, 1999; Marshall, Parker, Ciarrochi, & Heaven, 2014), and how these areas of social reasoning are connected to social behavior. Although there is a growing body of evidence to show that a positive link exists between social cognitive thought and social action (Hughes, 2011; Laible, McGinley, Carlo, Augustine, & Murphy, 2014), few studies have examined such a link in children beyond the early school-age years (Devine & Hughes, 2013). Given these past findings with younger children, it can be expected that such links may also exist between social cognitive thought and behavior among emerging adolescents.

Despite the fact that the school is a complex social institution that provides a data-rich environment in which to explore how young adolescents' make sense of their social world, little is known about the role that social cognitive processes play in self-development and social relations within the school context (Eccles & Roeser, 2003; Hughes, 2011). Given that schools are formal organizations and have their own characteristics (values, activities, rituals, norms), the school as a culture can have an influence on all aspects of adolescents' development. As Bruner (1996) states, viewed as a "culture," schools can create an atmosphere or climate that can either promote or impede self-expression, cognitive and emotional growth, and self-compassion.

A psychocultural and relational developmental systems approach to social understanding focuses on emerging adolescents' ability to recognize themselves and other people as psychological beings. It can draw on various social cognitive and epistemological theories and research (Selman, 1980; Tomasello, 2014a, 2014b), and may shed some light on the wealth of findings from psychosocial studies that show a significant drop in self-worth and an increase in reflection and self-conscious emotions approximately between the ages of 10 to 12 (Harter, 1999; Rochat, 2009). Similarly, there is substantial evidence of declines in academic motivation, attachment to school, and academic achievement across the emerging adolescence years (approximately ages 10 to 13 or 14) (Eccles & Roeser, 2003; Simmons & Blyth, 1987). Such developments can have a direct influence on adolescents' inner world, and how they choose to express themselves. In other words, schools have an important impact on how adolescents choose to "voice" their thoughts and avoid being silent.

Given the complexities surrounding the emerging adolescent experience (both personal and social), the adolescent personal fable has often been discussed in negative terms because of its potentially self-harmful consequences. That is, some risk-taking older children and adolescents may believe that they are immune to social and emotional problems experienced by others (Blakemore & Mills, 2014; Elkind, 1967; Finy, Bresin, Korol, & Verona, 2014). As a result, they may tend to disregard natural physical limitations, sometimes even the permanence of death. Moreover, such beliefs of infallibility may lead to the engagement of risk-taking behaviors (e.g., driving while inebriated or texting, engagement in extreme risk sports).

The personal fable, however, may also have protective value against suicidal, self-harming, and depressive behavior. For example, Cole (1989) found that adolescents who endorsed optimistic views of the future and life-affirming values were less likely to resort to suicidal thoughts or behavior. Cole hypothesized that adolescents who have a strong sense of their own invulnerability, and who do not see themselves as possible targets for silencing, nor feel the need to silence their own voices, will likely see themselves as capable of effectively coping with life challenges. Thus, Cole supports the idea that aspects of the adolescent personal fable may act as a buffer against suicidal thoughts and behavior (Larson, 2011).

In contrast, sometimes impulsivity, fueled by the belief of invincibility and coupled with a failure to recognize one's own limitation, has the potential to lead the young person who feels alienated from parent, family, and peers. Such impulsive tendencies may also lead the youth to develop self-critical, punitive, and cruel thoughts and perhaps attempt self-harmful behaviors such as suicide (Nock, Prinstein, & Sterba, 2009). For example, the report on adolescent suicide formulated by the Group for the Advancement of

Psychiatry (1996) suggested that the changes that characterize late childhood and early adolescence may leave some young people at risk.

A heightened sense of self-consciousness, fluctuating levels of self-esteem and incoherent, unstable sense of self, and a degree of impulsivity may set the stage for the development of future social and emotional difficulties such as conduct and impulse challenges (Del Giudice et al., 2009), and anxiety and internalizing or self-harm tendencies (Brinthaupt, Hein, & Kramer, 2009). The developmental characteristics may place particular youth at a heightened risk for an inappropriate response to stress under the most optimal or ideal circumstances. (Larson, 2011; Rose, 2014; Siegel, 2013). Even a relatively minor perceived loss or rejection or disappointment in oneself has the potential to trigger self-destructive urges and thoughts, which can lead to self-silencing, self-alienation, and self-harm (Callan, Kay, & Dawtry, 2014).

Later childhood and early adolescence is also a special time when many youth establish a degree of autonomy from their family and take significant steps in personal identity formation. At the same time, peer relationships become increasingly important. Family and peers may have positive and negative consequences for a young person's private speech and experiences of social silences. In the cases where emerging adolescents do not feel comfortable to voice their own opinions, they may distance themselves from their friends and families.

Also, given North America's relatively age-stratified society, emerging adolescents and their peers may interact within a social milieu that may not be a positive source of support (Blakemore & Mills, 2014; Robbins, 1998). Thus, emerging adolescents may feel that their personal voice is silenced and not valued by their family or peers, which, in turn, may lead to greater self-silencing, and consequent social and emotional challenges such as depression, self-harming behavior, or aggressive and impulsive behaviors (Del Giudice, 2014; Larson, 2011; Nock, 2009; Nock et al., 2009).

Social cognitive research: Theory of mind

Over the past decade, social cognitive research has increasingly come to envision the child as an interpretative psychologist (Astington & Olson, 1995; Tomasello, 2014a). That is, this research approach views the child as an intersubjective theorist (Bruner, 1996); one who depends on a mentalistic construal of reality to make sense of the social world. Based on the collective works of various social constructivists (Gergen & Walhrus, 2001; Tomasello, 2014b; see Harter, 1999 for review), and symbolic-interactionists (Mead, 1934; see Bruner, 1996), such an approach proposes that children come to understand or make meaning from their experiences guided by the tenets of relativism, constructivism, narrative and self-agency. Moreover, the Vygotskian notion that cognitive growth stems from social interaction is congruent with humanistic and psychobiological-cultural approaches to development (Bruner, 1996; Rochat, 2009).

Also referred to as a psychocultural or social ecological developmental approach (Bronfenbrenner & Morris, 2006; Sternberg, 2014; Tomasello, 2014a), this approach draws on various theories that assume children create and then rely on both emotional and cognitive structures to make sense of the world (Del Giudice et al., 2009; Piaget,

1967/1929; Rochat, 2009). Such an integrative approach may assist researchers to answer the increasingly common question of how children come to make meaning from their social experiences and eventually become "socio-emotionally literate" or socially intelligent (Goleman, 1995). Thus, the larger question becomes which conceptual framework can provide a unifying developmental theory that emphasizes the interactions among thought, emotion, and action in emerging adolescents?

In search of such a theory, developmental social scientists continue to investigate the social cognitive underpinnings of young people's ability to understand the social and personal world. The main goal of such research is to find a theory that will assist in their exploration of how children acquire the knowledge that others are thinking and feeling beings. Accordingly, over the past three decades, many researchers have approached the area of social cognition from what is referred to as a "Theory of Mind" (ToM) perspective. This unique way of viewing social understanding has also been referred to as folk psychology, commonsense psychology, or belief-desire reasoning (Apperly, 2012; Bjorklund & Ellis, 2014; Byom & Mutlu, 2014).

A ToM perspective on social cognitive development is unique in that it is founded on the premise that all humans are folk or commonsense psychologists. That is, humans understand social information by means of ascribing mental states to others and thinking that overt behavior is governed by these states. This ability to "read" others' minds, and to predict how people will act in social situations, focuses on the understanding of mental states such as beliefs, desires, and intentions (Devine & Hughes, 2014; Hughes, 2011; Ruffman, 2014).

More specifically, to understand social behavior, children must first understand mental representation. That is, they must understand that there is a difference between thoughts in the mind and things in the world (Astington, 1993). The inference of mental states from people's actions enables children learn to understand that minds are active and contain mental states that can bring about events in the world. Thus, the same world can be experienced in different ways by different people. Each person may have a distinctive belief about reality.

A ToM approach to social cognition claims that a largely implicit conceptual framework with intentional elements allows us to understand, explain, and predict our own and other people's behavior and mental states (Blakemore & Mills, 2014; Ruffman, 2014). Consistent with this view is the assumption that this mentalizing ability allows children to make sense of social behavior by ascribing desires and intentions to others' actions for the specific purpose of regulating their interactions with others (Tomasello, 2014a). Moreover, research suggests that the ability to recognize, represent, and understand others' thoughts and emotions in early childhood provides the social cognitive foundation for the later development of social and emotional competency (Rochat, 2009).

Interestingly, although the interest in the development of folk psychology has been paralleled by an interest in the social cognitive processes of the adolescent (Larson, 2011; Siegel, 2013), the two research areas have failed to connect. Perhaps the greatest impediment that has prevented researchers from adapting a ToM approach to social cognitive development beyond early childhood has been the lack of conceptual and methodological agreement among ToM theorists. Examples of some of the ongoing conceptual debates include the argument of how exactly a "Theory of Mind" develops beyond preschool, and what exactly *are* the processes or systems that develop (Apperly, 2012; Devine & Hughes, 2014)?

Although ToM research could enrich investigations of social cognition in older children and adolescence, particularly in the areas of self-concept (Wellman, 2014), perspective-taking (both affective and cognitive) (Hughes, 2011), and person perception (Bosacki & Astington, 1999), the two research areas (ToM and developmental social cognitive research including social information-processing; Dodge, 1986), have now started to collaborate and build on each other's findings (Ibanez et al., 2013; Lagattuta, 2014; Lagattuta, Nucci, & Bosacki, 2010).

Given that ToM understanding, or the ability to "read" others' mental states within the context of social action, can also be referred to as psychological understanding (Bruner, 1996) this ability enables children to understand multiple perspectives and to communicate with others (Nelson, Henseler, & Plesa, 2000). Recent research in children's ToM shows that, by age 5, children begin to understand that people have desires that lead them to actions, and that these actions are based on beliefs. Beyond the age of 5, however, little is known about the links between psychological understanding and social experience (Lagattuta, 2014).

Given that children who possess an advanced psychological understanding are more likely to think about their own and others' thinking during the school day, such an ability has important educational implications (Pincham et al., 2014). For example, recent research shows that this ability to make a meaningful story out of people's thoughts and actions plays a role in self-regulated learning and language competence such as storytelling. Moreover, research has shown that the ability to "read others," or to make sense of the signs and symbols evident in human communication, has an influence on children's self-conceptions and their social interactions.

Emerging adolescents' theories of mind: A case for complexity

Despite the claim that late childhood and early adolescence is a pivotal time in many areas of social cognitive development including cognitive reflexivity (Piaget, 1929), self-concept formation (e.g., Erikson, 1968; Harter, 1999), and interpersonal relations (e.g., Rosenberg, 1965; Selman, 1980), a relational developmental systems approach to help explain the links among these social cognitive areas remains to be taken. This inquiry promotes a better understanding of the two main tasks of later childhood and adolescence which are: (1) the intrapersonal task of constructing a coherent psychosocial identity (Erikson, 1968; Larson, 2011), and (2) the interpersonal task of understanding the multiple and contradictory intentions of others, allowing judgments to be made in an uncertain and ambiguous world (Bosacki, 2012). Thus, drawing on various social cognitive (Selman, 1980) and epistemological theories and research (Wellman, 2014), a folk psychological approach to social cognition may help to illustrate the linkages among the understanding of mental states in others, self-concept, and social relations.

Past research studies have focused mainly on the aspect of children's ToM development which involves their recognition of false belief (Wimmer & Perner, 1983). Around 4 years of age, children understand that people act on their representation of the world, even in situations where it misrepresents the real situation. That is, at this age children can represent and reason from people's first-order beliefs (one mental state): X believes p. From as young

as age 5 or 6, children are able to represent and reason from second-order beliefs (two or more mental states): X believes that Y believes that P (Perner & Wimmer, 1985). As mentioned earlier, compared to first-order ToM, the development of second-order understanding has received little attention in the literature. This is surprising, given that much of our social interaction depends on what people believe about other people's beliefs and emotions (Astington, 1993).

The importance of second-order reasoning has been shown to be related to children's ability to understand speech acts such as lies and jokes (Fu, Xiao, Killen, & Lee, 2014), and in their ability to understand self-representational display rules (Banerjee & Yuill, 1999). Although research on ToM and social and self-competence remains in its infancy, there are some research findings that suggest that such higher-order reasoning is also fundamental to children's understanding of complex emotions, their self-concept, and social interactions.

For example, in some of our past research with early adolescent learners, we found that a more sophisticated ToM ability was positively related to social competence for boys only. In contrast, for girls, the link between ToM and social competence was moderated by self-perceptions (Bosacki, 2000; Bosacki & Astington, 1999). More specifically, if girls scored relatively high on the ToM measure (i.e., possessed a sophisticated ToM understanding), and also reported a relatively negative sense of self, compared to boys they received relatively low social competence ratings from their teachers and peers. Thus, how girls felt about themselves influenced the connection between their ToM ability, or their ability to "read other" in social situations, and how their teachers and peers viewed them within a social context.

Many social cognitive (e.g., Bruner, 1996; Harter, 1999; Selman, 1980; Tomasello, 2014b), and ToM theorists (e.g., Astington, 1993; Miller, 2009; Wellman, 2014) agree that the ability to understand self and others within the context of social relations develops in complexity throughout one's lifetime. However, how this growth comes about and what it consists of remains debatable (Byom & Mutlu, 2013). Recently, various authors have emphasized that to better understand the concept of a general, overarching Theory of Mind, one must map out or chart the components that create an adult or mature Theory of Mind (Apperly, 2011; Apperly, Samson, & Humphreys, 2009; Hughes, 2011). Although a few attempts to apply the ToM approach to social understanding have been expanded to the early adolescent years (e.g., Chandler, 1987; Miller, 2012), the majority of literature written on later childhood and adolescent social cognition remains mainly within the field of social or social cognitive psychology.

Furthermore, the idea that effective communication is dependent upon both the attribution of mental states to ourselves and others and the maintenance of a positive self-concept remains relatively unexplored in older children and adolescents (Rochat, 2009). Thus by focusing on the understanding of, and the coordination with, the perspective of others, a ToM approach to social cognitive development in the preadolescent may help to illustrate the relations between social understanding (theory of other minds and emotions), intrapersonal understanding (theory of one's own mind and emotions), and social relations (Tomasello, 2014a).

Social cognitive (Bruner, 1996; Pinker, 2007; Tomasello, 2014b) and ToM theorists (Wellman, 2014) have recognized the significant role that higher-order mental states play in

social interactions. Both groups of researchers contend that complex, reflexive reasoning skills are a prerequisite for the ability to understand self and others within the context of social relations. However, the mechanisms and processes surrounding how this reasoning ability develops, or what it consists of, lack consensus (Miller, 2012). Despite the potential to shed light on the complex workings of the adolescent mind, the two research paradigms of ToM and social cognition have only recently started to connect beyond the early school-age years (Devine & Hughes, 2013).

To date, the majority of social cognitive research remains largely fragmented, as studies of advanced ToM often remain in isolation and disconnected from other social cognitive abilities (Bosco, Gabbatore, & Tirassa, 2014; Byom & Mutlu, 2013; Lagattuta et al., 2015). Likewise, social cognitive studies on attribution and perspective or role-taking (both of self and other) (e.g., Selman, 1980, 1989), person perception (e.g., Bosacki & Astington, 1999), and empathetic sensitivity and emotional regulation rarely explore or cite possibly related ToM research (e.g., Hollenstein & Lougheed, 2013). Similarly, the realm of social cognitive research has generally failed to integrate the mainly cognitive studies of higher-order mental processes with developmental research on older children and adolescents (e.g., Pinker, 2007).

For example, studies have shown that the emergence of relativist thought, or the process of becoming a reflective knower (Chandler, 1987), co-occurs with the ability to understand the meaning of promising (Maas, 2008; Miller, 2012); social commitment (Malti & Krettenauer, 2013); sarcasm, irony, and gesture (Filippova & Astington, 2008; Goldin-Meadow, 2014; O'Reilly, Peterson, & Wellman, 2014); self-conscious emotions such as shame and guilt (Rochat, 2009); and metacognitive and metalinguistic verbs (verbs that represent mental states) (Astington & Olson, 1995; Pinker, 2007). Moreover, despite the increasing interest in the development of an advanced constructivist ToM beyond middle childhood (Devine & Hughes, 2013), at the time of this writing, there have been no studies that have attempted to either conceptualize or systematically empirically study the workings of the emergent adolescent mind as a dynamic, multifaceted network of cognitive and affective components that may serve as a template for self and other understanding.

Furthermore, this book defines social cognitive development in later childhood and early adolescence within a critical analysis of psychosocial studies that show a significant drop in self-worth (Harter, 1999; Larson, 2011), and an increase in self-consciousness (Rochat, 2009; Simmons & Blyth, 1987) between the ages of approximately 8 and 13 years. Given that some social cognitive theories claim that links may exist between the development of relativistic and self-conscious thought and the human tendency to experience generic self-doubt and fear of rejection (implying a decrease in self-worth) (Rochat, 2009), more research is needed on social cognitive development and emotional experiences of emerging adolescents. Moreover, despite the recent popularity of cultural psychology and cultural neuroscience (Bruner, 1996; Kim & Sasaki, 2014), a large gap continues to exist in the ToM literature concerning sociocultural issues such as gender, culture, and socioeconomic status (Hughes, 2011).

The need for an integrative, multilateral theory to explain an advanced ToM is supported by the assertion that the period of late childhood and emerging adolescence (approximately 8–13 years) is the second period of individuation that involves a developmental

"shift-point" (Blakemore & Mills, 2014; Blos, 1979; Del Giudice, 2014; West-Eberhard, 2003). That is, when a developmental shift occurs, a regulatory mechanism may help to alter all areas of development. Within this shift, the fusion of interpersonal and intrapersonal understanding enables the young person to continue to develop a sense of identity and attachments with others (Del Giudice, 2014; Erikson, 1968).

The majority of past literature on social cognition has assumed that self and person perceptions develop in parallel (Tomasello, 2014a). That is, self and other concepts arise simultaneously from social interactions, develop in the same fashion, and share the same features. Alternatively, in agreement with other social cognitive theorists (Hughes, 2011), a ToM approach to social cognition may provide an avenue to investigate the dynamic relations between these two processes.

Drawing on various theories of social cognitive processes, particularly that of attribution theory (e.g., Killen & Smetana, 2012), conceptual role-taking (Piaget, 1929; Selman, 1980), folk psychology and the conceptual formulation of social understanding in adolescence (Miller, 2012), empathy (e.g., Harris, 1989; Lonigro, Laghi, Baicco, & Baumgartner, 2014), and person perception, ToM research provides a framework to help investigate the connections between understanding of self and other and social interaction. Given the philosophical foundations of folk psychology and the conceptual formulation of social understanding in adolescence, researchers have yet to describe how this understanding influences self-concept and social relations in emerging adolescence. Such a framework will provide the opportunity to study the influences of a developing ToM on older children and early adolescents' construals of other people, the self, and the reasons behind social behavior.

Similarly, ToM as an ability to co-construct or narrate one's social reality may also provide a framework in which to investigate the consequences of the process of becoming "perspectival." That is, how does the process of becoming a constructivist epistemologist influence one's social and emotional development (Tomasello, 2014b). For example, some social cognitive developmentalists suggest that as children enter adolescence they move from a dichotomous "true/false" view of knowledge and mind to a more constructivist or "degrees of certainty" view (Blakemore & Mills, 2014; Larson, 2011). This view of development has just begun to incorporate aspects of social-emotional and cultural competence (Blakemore & Mills, 2014). It is therefore important to investigate traditionally researched areas of social cognitive understanding from the perspective offered by ToM theorists.

Chandler (1987) proposed that a collaborative approach toward understanding the adolescent's mind may help to illustrate the social cognitive and emotional processes that occur during early adolescence, when a shift from a realistic to a constructivistic epistemology occurs (e.g., Lalonde & Chandler, 1995). More specifically, Chandler suggested that the investigation of conceptual role-taking, empathetic sensitivity, and person perception may provide a clearer picture of how emerging adolescents infer mental states in others. That is, the examination of these three constructs within the context of relationships may help to explain the complex social cognitive processes underlying social understanding during emerging adolescence. Accordingly, the following section provides a brief overview of research findings in each of the three social cognitive constructs.

Conceptual role-taking As already noted by various ToM and social cognitive researchers (Astington, 1993; Flavell & Miller, 1998; Harris, 1989; Hughes, 2011), research on young people's understanding of mind is reminiscent of the notion of social role-taking or perspective-taking that took place almost 50 years ago (e.g., Flavell & Miller, 1998). However, the majority of studies performed during the 1960s and 1970s involved preschool and early grade school children. Although an attempt was made by cognitive developmentalists to investigate perspective-taking and ego development in older children, the majority of the studies involved older adolescents and adults and often failed to investigate social-cultural factors such as gender and culture-related variables (Hyde, 2014).

For example, an account of how children learn to differentiate self from other is offered by Selman's (1980) model of interpersonal understanding. Selman's theory explains how we learn to coordinate their perspective with others and thus develop role-playing skills. According to Selman's five-stage theory, children gradually progress from an egocentric stage to learning how to appreciate that others also have perspectives and that these may be different from their own.

Selman's model states that emerging adolescents (i.e., 10- to 13-year-olds) learn to understand multiple perspectives simultaneously. Within this third person or mutual perspectives stage, the emerging adolescent abstracts the self from an interactive situation and views the perspectives of each person involved in the interaction. That is, the individual viewpoint can be reflected upon from that of another person. However, Selman's (1980) model has been criticized for an overemphasis on the structure of various stages that closely resemble Piagetian stages of cognitive development (Schaffer, 1996).

Theory of Mind research also readdresses the development of young people's egocentrism (Chandler, 1987; Elkind, 1967; Rochat, 2009). One example from past literature refers to adolescents' failure to differentiate between their own thoughts and those of others as the imaginary audience syndrome. Similarly, as mentioned earlier, overdifferentiation between adolescents' own thoughts and the thoughts of others is known as the personal fable. From a ToM perspective, young people who experience this egocentrism may find it challenging to understand how others think, feel, and have different perspectives. That is, since some youth may find it difficult to take the roles or perspectives of another person, they may also have difficulty trying to imagine themselves in "another person's shoes"—either cognitively or emotionally. Such results imply that the links between mental reasoning for self and other are complex and suggest the need for further investigation in older children and adolescents (Ibanez et al., 2013).

Drawing on past conceptual role-taking research, a ToM approach to social cognition integrates the multiple cognitive abilities that one utilizes to make sense of human behavior. A ToM approach also enables examination of the complexity of social understanding by investigating the different aspects of perspective-taking such as understanding others' thoughts and emotions. In contrast to past perspective-taking research that assumed thought caused emotion and behavior, a ToM approach to social cognition illustrates the complex transactional relations between cognition and emotion.

In addition, within a ToM framework, researchers explore and delineate the dynamic interplay among cognitive abilities, emotional, social, and moral action. Theory of Mind

research may thus provide an integrative and dynamic overarching conceptual framework that guides research on social cognitive, emotional, moral, and spiritual competencies (Apperly, 2012; Hughes, 2011; Miller, 2009). Outlined below are various social cognitive components of ToM research that may help educators and researchers to further explore the complex interplay among the ToM-related variables.

Empathetic sensitivity   Research suggests that young children's initial emotional understanding provides the foundation for the later development of empathy (ability to recognize emotions in others) and prosocial behavior (Paulus, 2014). Relatedly, a ToM approach to emotional understanding assumes that to achieve effective social relations youth must interpret and understand both the thoughts and feelings of self and other. According to Killen and Smetana (2013), empathy contains both affective and cognitive components, and is related to one's ability to interact with others in relationships. Although some ToM researchers are starting to show an interest in the role that empathetic sensitivity plays in the understanding of minds (Ensor, Devine, Mark, & Hughes, 2014; Hughes, 2011; Ibanez et al., 2013; Wellman, 2014), more ToM research is needed on the role empathetic sensitivity plays in adolescents' social understanding within various cultural backgrounds and across varying levels of developmental ability.

Past research shows that the majority of typically developing young people understand multiple internal states and relate them to each other in a coherent fashion (Harris, 1989). Studies have also shown that most children as they approach adolescence begin to develop the ability to understand that another person or themselves may have conflicting emotions and/or hide emotions from others (Harris, 1989). As I will explain further in Chapters 4 and 5, related research on the more complex, or self-conscious, emotions shows that most children gradually learn how to understand complex emotions, or that one can have conflicting emotions throughout late childhood and emerging adolescence (Harter, 1999).

Furthermore, the importance of empathy and self-regulation in social cognitive development is supported by research from two relatively independent, although related, areas. ToM research has shown that, in addition to cognitive understanding, emotional understanding plays an independently significant role in school-aged children's social interactions (Bosacki, 2015; Hughes, 2011). Similarly, social cognitive studies of empathy in early adolescence have generally found that empathetic responding is positively related to popularity or peer acceptance (Bosacki, 2000; Hughes, 2011), to peer competence (e.g., Deci & Ryan, 2013; Wellman, 2014), and delayed self-gratification or self-control and regulation (Mischel, 2014). Thus, to achieve a fuller understanding of an emerging adolescent's ToM, the two research areas need to connect in more comprehensive and coherent ways. I will elaborate on the role emotions play in young people's identity development and social cognitive experiences such as self-regulation later on in the book.

Person perception   Although research on person perception stems from diverse theoretical and methodological perspectives (Blakemore & Mills, 2014), the basic assumption is that social interactions are influenced by one's conceptualization of others. That is, our social

experiences shape our perceptions of others (Mead, 1934). In general, research has shown that children's understanding of the behavior and personality of others progresses along a developmental continuum (Schaffer, 1996). This continuum reflects a shift from viewing others in terms of concrete, observable characteristics (e.g., "She is tall"), to an increased understanding of others in terms of abstract, psychological characteristics (e.g., "He is more worried than his brother"). During early adolescence, research has also shown that there is an increase in the use of psychological comparisons and categories reflecting consistent traits, interests and abilities, and beliefs (Hughes, 2011).

Although studies of person perception and related studies of gender stereotyping have occurred independently of ToM research, the ability to attribute or ascribe gender-role stereotypes relates to the general rubric of trait attribution and thus suggests indirect implications for ToM research (Flavell & Miller, 1998; Hyde, 2014). This ascription of gender-role stereotypes can be viewed as a heuristic device that enables girls and boys to understand their own and others' intentions and beliefs (Hyde, 2014). Consequently, the representations of these social roles may help shape evaluative perceptions about the self and other that, in turn, could be used to guide social interactions.

The explanatory or predictive use of trait terms and gender roles shares some of the concepts that are associated with ToM research as they illustrate how people create implicit personality theories to predict or explain others' behavior. Although person perception and trait attribution research continues to grow, the area continues to be neglected by ToM researchers (Hughes, 2011). In general, research gleaned from social cognitive psychology has shown that emerging adolescents may interpret each other's behaviors based on gender-role stereotypic attributes such as associating greater sociability and emotionality with girls (Hyde, 2014), and greater instrumentality and autonomy with boys (Fine, 2010).

Such findings provide support for various feminist epistemological theories that claim females' conceptions of self and others are more psychologically oriented, or rooted in a connection with, and relatedness to, others. In contrast, such theories suggests that most males often define themselves and others in terms of behaviors or accomplishments (Hyde, 2014). Such gender-related difference findings also support the evolutionary developmental approach that claims the adrenal gland and the commencement of anarche plays a significant role in gender-related differences during later childhood (Bjorklund & Ellis, 2014; Del Giudice, 2014). Thus, a ToM approach to development could help to investigate the specific processes that enable emerging adolescents to create gender-typed implicit personality theories and why this occurs. The role of gender in social cognition will be further explained in Chapter 8 when I discuss the development of young people's social cognition within the larger culture of gender and ethnicity.

Applications: So What?

Despite the increasing recognition that schools play a crucial role in the overall development of emerging adolescents, researchers have just begun to explore the extent to which school experiences affect the social cognitive life of the adolescent. That is, to what extent does school life affect the adolescents' ToM, emotional competencies, self-beliefs and regulation,

and the ability to make behavioral choices, such as decision-making? Although a growing number of researchers explore peer and teacher–student relationships, most have mainly focused on the impact of schools on cognitive rather than social, moral, and emotional outcomes. As noted by many scholars, the need for a transdisciplinary and developmental psychocultural approach to the study of social cognitive development within a school context during emerging adolescent has increased over the past decade (Sternberg, 2014).

As researchers in educational, psychology, sociology, anthropology, and other fields tend to work independently of one another, the utilization of a variety of different methodologies creates a challenge for educators and researchers to build a coherent body of knowledge about the social cognitive development of the emerging adolescent. In the following chapter and in the remainder of this book, through the lens of an integrated, multidisciplinary, and psychocultural approach, I will outline multiple ways in which researchers and educators might consider how various aspects of the school experience may influence the emerging adolescent's sense of self, and social cognitive experiences. I will also suggest some strategies that educators can perhaps integrate into their classrooms to promote the development of social cognitive abilities, and ways to develop caring and supportive relationships and a sense of positive self-worth.

Future Questions and Summary

As discussed in this first chapter, the developmental relational systems approach to social cognitive development has implications for multidisciplinary, holistic, therapeutic, and educational programs that draw on other cultures for their sources of expertise. An integrated, transformational learning model that connects education to therapy could provide a useful foundation within which holistic educational and therapeutic programs can be developed. Research findings from the areas of developmental evolutionary cognitive science and positive psychology (Donaldson, Dollwet, & Rao, 2015), with a focus on resilience and compassion, could be used to help create inclusive, developmentally appropriate educational and clinical programs.

For example, as I will describe further throughout this book, to promote interpersonal and intrapersonal competencies among youth, findings from applied developmental cognitive science research could help to create a developmentally appropriate curriculum. The next chapter will explore various research methodologies to help researchers and educators to measure and evaluate developmental social cognition in emerging adolescence.

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