

Make-Believe Play: Wellspring for Development of Self-Regulation

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The early childhood years are a crucial time for the development of self-regulation—an array of complex mental capacities that includes impulse and emotion control, self-guidance of thought and behavior, planning, self-reliance, and socially responsible behavior (Bronson, 2000; Kopp, 1991). By the end of the preschool years, well-regulated children can wait for a turn, resist the temptation to grab a desired object from another child, clean up after a play period with little or no adult prompting, willingly help another child or adult with a task, and persist at a challenging activity. Such children also actively try to control negative emotion, often by talking to themselves (“I’ll get a chance soon”) or changing their goals (when one activity isn’t possible, turning to another).

As these examples illustrate, self-regulation is central to our conception of what it means to be human—the foundation for choice and decision making, for mastery of higher cognitive processes, and for morality. Self-regulatory capacities are also essential for children to meet the academic and social requirements of school. The human need for complex, flexible regulatory systems that can cope with a wide array of environmental conditions means that the development of self-regulation begins early, takes place over an extended time period, and requires substantial external support.

Early childhood is also the “high season” of imaginative play (Singer & Singer, 1990), a period in which make-believe evolves from simple imitative acts into elaborate plots involving complex coordination of roles. In this chapter, we present wide-ranging evidence that pretense is pivotal in children’s advancing mastery over their own thinking, emotions, and behavior. Our work is grounded in the sociocultural theory of eminent Russian developmental psychologist Lev Vygotsky (b. 1898, d. 1934), who viewed social experiences—including make-believe play—as

prime catalysts of development. We begin by reviewing central Vygotskian concepts, and related research, key to understanding Vygotsky's view of the role of make-believe in self-regulatory development. Then we turn to Vygotskian ideas about the function of pretense, and supportive evidence. We conclude with the importance of encouraging and enriching children's make-believe in families, early childhood programs, and communities, and of providing developmentally appropriate play interventions for children who are deficient in self-regulatory skills.

#### Early Childhood: A Crucial Period for Development of Self-Regulation

Self-regulation begins with control of arousal and modulation of sensory stimulation in the early months of life and extends to emergence of compliance and impulse control in the second year (Kopp, 1982). During the preschool years, children start to use cognitive strategies to control their emotions and impulses, learn to act in accord with social and moral standards, and make strides in directing and monitoring their thinking and behavior in pursuit of self-chosen goals and the expectations of others (Flavell, Miller, & Miller, 2002; Luria, 1961; Mischel, 1996; Vygotsky, 1934/1986). The diverse aspects of self-regulation are interrelated. Impulse control, emotion regulation, cognitive regulation, and the capacity to act in accord with social and moral standards contribute to one another. Self-regulation is a crowning achievement of early childhood (Bronson, 2001; Eisenberg, Smith, Sadovsky, & Spinrad, 2004).

Methods that permit study of the relationship between brain functioning and behavior (such as functional magnetic resonance imaging) suggest that massive changes in the cerebral cortex, especially the frontal lobes, underlie gains in self-regulation (see, for example, Gerardi-Caulton, 2000; Rothbart et al., 2003). Formation of synapses in the frontal lobes peaks during the preschool years, reaching nearly double the adult value around age 4, with pruning of synapses

just underway—neurological developments that signify a period of high plasticity, or “readiness” for learning (Nelson, 2002; Rothbart & Bates, 1998; Thompson et al., 2000). The neurological underpinnings of self-regulation (and other higher cognitive functions), however, do not simply “mature” in the young child. Instead, mounting evidence indicates that they result from dynamic interchanges between brain activity and experience (Huttenlocher, 2002; Johnson, 1998). Appropriate environmental supports are essential for the cerebral organization that gives rise to self-regulation.

Gains in behavioral self-control between 18 and 30 months, as indexed by the child’s increasing capacity to delay gratification (e.g., wait to eat a raisin or open a gift), correlate with early language progress (Vaughn, Kopp, & Krakow, 1984). Indeed, the earliest manifestations of self-control, in the form of compliance, require that toddlers have developed sufficient language to comprehend a caregiver’s verbal directives. Compliance, in turn, quickly leads to first self-directed verbal commands in the service of self-control, evident in, for example, the toddler who exclaims, “No, can’t!” and then inhibits her reach toward a light socket. Large individual differences in self-control are apparent early and remain modestly stable into middle childhood and adolescence, with language development remaining a significant predictor of maturity (Cournoyer, Solomon & Trudel, 1998; Kochanska, Murray, & Coy, 1997; Shoda, Mischel, & Peake, 1990).

In accord with these findings, diverse theories grant language a facilitating role in the development of self-regulation (Mischel, 1996; Piaget, 1936/1951; Skinner, 1957; Vygotsky, 1934/1986). Among them, however, Vygotsky’s sociocultural perspective is unique in regarding language as the prime catalyst of self-regulatory development.

Vygotsky’s Theory: Adult–Child Dialogues Engender Self-Regulation

According to Vygotsky, cooperative dialogues between children and more knowledgeable members of their society are essential for children to acquire uniquely human, higher cognitive processes, including management of attention and behavior, reflection on experiences and ideas, and strategies for solving cognitive and social problems. Any complex form of thinking first appears in social communication, between the child and more expert representatives of his or her culture as they engage in joint activities (Vygotsky (1930–1935/1978). Only later does it appear within the child as an autonomous capacity or skill. Because language is our primary avenue of communication with others and the central means through which we represent experience, once children become capable of thinking with words, their capacity to make contact with, and to be influenced by, more expert minds greatly expands. Eventually, children take the communication jointly generated in these dialogues and turn it toward the self. As a result, language (as we will see later when we take up private, or self-directed, speech) becomes an indispensable mental tool for guiding and managing thought and behavior.

For Vygotsky (1930–1935/1978), communication with more mature cultural members promotes development by providing the child with experiences in his or her zone of proximal development—a vital Vygotskian concept that refers to tasks that offer an appropriate degree of challenge in that the child can accomplish them with social support. Contemporary followers of Vygotsky point out that adult and child jointly create this zone through at least two communicative ingredients.

First for information, ideas, and skills to move from the social-interactive plane to the internal-thinking plane, adult and child must strive for *intersubjectivity*, or shared understanding, which grows out of each partner's sensitivity to the other's perspective (Newson & Newson,

1975). Intersubjectivity is itself a developmental process. Because infants and young children are still acquiring communication skills, the younger the child, the greater the adult's responsibility for making mental contact and sustaining interaction, through sensitively adjusted verbal and nonverbal cues (Ratner & Stettner, 1991). The development of spoken language enables greater clarification of purpose between participants in a dialogue and, thus, brings a vastly expanded potential for intersubjectivity. By 2 to 3 years, children can clearly state their thoughts and feelings and respond in a timely and relevant fashion in a dialogue—capacities that improve with experience (Whittington & Ward, 1999). As the adult adjusts her communication to the child's level, the child stretches up to grasp the adult's viewpoint, yielding a "meeting of minds" that fuels children's learning.

Intersubjectivity makes possible a second interactive feature that creates the zone of proximal development: *scaffolding*, a metaphor that captures effective adult support as children engage in challenging endeavors (Wood, 1989). In scaffolding, the child is viewed as an edifice, actively under construction; the adult provides a dynamic, flexible scaffold, or framework, that assists the child in mastering new competencies. To promote development, the adult varies his or her assistance to fit the child's changing level of performance, by adjusting the task so its demands are appropriate and tailoring the degree of intervention to the child's current learning needs (Berk & Winsler, 1995). A major goal of scaffolding is to promote self-regulation, by offering strategies for successful mastery and relinquishing assistance once the child can function autonomously.

Studies of children of diverse ages engaged in a wide variety of tasks reveal that adult encouragement, emotional support, and scaffolding predict increased effort and more successful performance when children attempt challenging tasks on their own (Diaz, Neal, & Vachio, 1991;

Landry, Miller-Loncar Smith, & Swank, 2002; Neitzel & Stright, 2003; Pratt, Kerig, Cowan, & Cowan, 1988; Roberts & Barnes, 1992). Moreover, scaffolding is linked to children's use of private speech—a major sign that children are adopting socially generated strategies and using them to regulate their own thinking and behavior (Behrend, Rosengren, & Perlmutter, 1989, 1992; Berk & Spuhl, 1995).

#### Vygotsky's View of Make-Believe Play: Vital Context for Development of Self-Regulation

Vygotsky regarded make-believe play as the paramount, early childhood context for development of self-regulation. Consistent with this view, make-believe is rich in collaborative dialogues and development-enhancing consequences. As soon as toddlers have the language skills to engage in pretense, warm, involved parents often join in and scaffold their play.

Consider Kevin, who takes charge of his 2½-year-old daughter Sophie on weekday afternoons: On arriving home from child care, Sophie usually grabs Kevin's hand and leads him to the family-room rug, filled with building toys and make-believe props. One afternoon, Sophie moved a toy horse and cow inside a small, enclosed fence that she and Kevin had put together the day before. Then she turned the animals on their sides and moved them toward each other.

“Why are the horse and cow lying down?” Kevin inquired.

“Cause they're tired,” Sophie answered, pushing the two animals closer together.

“Oh, yes,” Kevin affirmed. Then building on Sophie's theme, he placed a teddy bear on another part of the rug and offered, “I think Ted's tired, too. I'm going to start a bed over here for some other animals.”

Sophie turned toward the teddy bear, lifted his paw, and exclaimed, “She wants a lollipop to hold in her hand!”

“A lollipop in her hand? We haven't got any lollipops, have we?” answered Kevin.

“Maybe this could be a make-believe lollipop,” suggested Kevin, placing a round piece on the end of a long TinkerToy stick and handing the structure to Sophie.

“That’s a lollipop,” agreed Sophie, placing it in the paw of the teddy bear.

“Can she suck that while she’s going off to sleep?” asked Kevin. “Do you think that’s what she wants?”

“It’s a pacifier,” explained Sophie, renaming the object.

“A pacifier, do you think? The pacifier might help her get to sleep,” Kevin confirmed.

“This long, long pacifier,” Sophie answered, picking up the TinkerToy structure, looking at its long stick, and pausing as if to decide what to do next.

“Leprechaun is looking pretty tired,” suggested Kevin, laying Sophie’s stuffed leprechaun next to the teddy bear. “What do you think?”

“He wants a lollipop, too!”

“Oh, he wants a lollipop as well. What are we going to use for a lollipop for the leprechaun?” asked Kevin.

Pressing the teddy bear’s and the leprechaun’s arms together and the lollipop-turned-pacifier between them, Sophie readily arrived at a solution. “He’s sharing,” she affirmed.

“Oh, they’ll share! All right,” Kevin agreed. (Adapted from Berk, 2001, pp. 107–108)

Eminent developmental theorists of the twentieth century accorded make-believe play a significant role in development, variously regarding it as a means through which preschoolers practice and solidify symbolic schemes (Piaget, 1936/1951), as a form of wish fulfillment that assists children in mastering fears and anxieties (Freud, 1959), and as an avenue for exploring social roles and gaining a sense of their future (Erikson, 1950). Acknowledging these functions, Vygotsky moved beyond them, elevating make-believe to a “leading factor in development”—a

unique, broadly influential zone of proximal development in which children experiment with a wide array of challenging skills and acquire culturally valued competencies (Vygotsky, 1930–1935/1978, p. 101). Foremost among those abilities is a greatly strengthened capacity for self-regulation. Vygotsky stated:

[Make-believe] play creates a zone of proximal development in the child. In play, the child always behaves beyond his average age, above his daily behavior; in play it is as though he were a head taller than himself. As in the focus of a magnifying glass, play contains all developmental tendencies in a condensed form and is itself a major source of development. (p. 102)

Careful observations of children at play reveal what Vygotsky meant when he asserted that make-believe play creates a zone of proximal development in which the child is “a head taller than herself.” In Sophie’s play with her father, she satisfied both the teddy bear’s and the leprechaun’s desire for a lollipop, when just one toy lollipop was available, by having them share—a remarkably mature response for a 2-year-old. In everyday life, Western toddlers and preschoolers find sharing to be difficult (Fasig, 2000; Levine, 1983). As another illustration, consider 5-year-old David, who cannot sit still and pay attention during circle time in kindergarten for more than 2 minutes. Yet when pretending to be a cooperative member of the class while playing school with his friends, David can sit and attend for as long as 10 minutes. Play provides the roles, rules, and scenarios that enable David to focus and sustain interest at a higher level than he does in nonpretend activities. Indeed, during the preschool years, as goal-directed play becomes more complex, often in the form of make-believe, children’s attention spans increase and their distractibility declines (Choi & Anderson, 1991; Ruff & Capozzoli, 2003).

### *Unique Features of Make-Believe Play*

Vygotsky (1930–1935/1978) asserted that the distinctive features of make-believe play—those that make it unique among children’s experiences—clarify just how it leads development forward. He concluded that two crucial elements distinguish make-believe from other childhood activities.

First, the creation of imaginary situations in play helps children separate mental representations from the objects and events for which they stand. Once preschoolers realize that words, gestures, and other symbols are distinct from external reality, they are on their way to using those symbols as tools for overcoming impulse and managing their own behavior. As a result, children strengthen their *internal capacity* to become civilized and socially responsible. Second, a careful look at children’s play scenarios reveals that make-believe play is, above all, rule-based play. Drawing on experiences in their families and communities, children continuously devise and follow social rules in pretense. In doing so, they strive to bring their behavior in line with social expectations, thereby strengthening their sensitivity to *external pressures* to act in socially desirable ways.

These complementary ingredients of make-believe play suggest that it is a supreme contributor to the development of self-regulation—one that extends the impact of adult teaching and example more than any other context of the preschool years (Berk, 2001). Let’s examine these features of pretense more closely.

*Overcoming Impulsive Action.* Between 1 and 2½ years of age, as children acquire language, the ability to comply with others’ directives, and limited self-control, caregivers increasingly insist that children engage in socially appropriate conduct—respect property, treat others kindly, obey safety rules, delay gratification, participate in simple chores, and use good

manners (Gralinski & Kopp, 1993). During the very period in which children must learn to subordinate their desires to social life, imaginative play flourishes. For Vygotsky (1930–1935/1978), this synchrony between socialization and make-believe is no coincidence. The young, immature child colors on walls, drops toys on the spot when another activity engages him, runs after a ball that rolls into the street, grabs an attractive object from a playmate, and cannot wait patiently while his mother is on the phone. Make-believe play, Vygotsky asserted, helps preschoolers conquer these impulses by giving the child repeated practice in “acting independently of what he sees” (p. 101).

According to Vygotsky, the object substitutions in make-believe are crucial in helping children use thought to guide behavior. By changing an object’s usual meaning—making a TinkerToy stand for a lollipop or a folded blanket for a sleeping baby—children detach ideas from the stimuli around them. Sophie, for example, used the image of a lollipop to alter the TinkerToy’s identity. In doing so she controlled the lollipop’s very existence, and the teddy bear’s, the leprechaun’s, and her own actions toward it.

Toddlers’ efforts at make-believe reveal that distinguishing mental symbols from their real-world referents is initially quite difficult. Children younger than age 2 generally use only realistic-looking objects while pretending—a toy telephone to talk into or a cup to drink from (Tomasello, Striano, & Rochat, 1999). Around age 2, children start to pretend with less realistic toys. During the third year, they flexibly imagine objects and events without support from the real world, as when they exclaim, “I’m launching the rocket!” while gesturing with their hands or without acting out the event at all (O’Reilly, 1995; Striano, Tomasello, & Rochat, 2001).

Vygotsky maintained that in separating symbols from objects, make-believe play helps children choose deliberately among alternative courses of action. In play, Sophie imagined that

both the teddy bear and the leprechaun wanted a lollipop, considered possibilities (whether to give the lollipop to one, to create a second lollipop, or to have them share), and decided the eventual outcome.

*Acquiring and Enacting the Rules of Social Life.* Vygotsky, like Erikson, regarded make-believe as a vital early childhood context for learning about social roles. Vygotsky (1930–1935/1978), however, was more explicit about how pretense fosters children’s eager, willing participation in social life. Children’s imaginative play, Vygotsky pointed out, contains a paradox. In play, preschoolers seem to do what they most feel like doing, and to an outside observer, their play appears free and spontaneous. Nevertheless, pretend play demands that children act against their immediate impulses because they must subject themselves to the rules of the make-believe scene. For example, a child pretending to go to sleep follows the rules of bedtime behavior, another child imagining herself to be a mother conforms to the rules of parental behavior, and still another child playing astronaut obeys the rules of shuttle launch and space walk.

In this sense, make-believe is not really “free play,” as it often is assumed to be. Instead, its essence is self-restraint—voluntarily following social rules. While pretending, Vygotsky (1930–1935/1978) explained, children repeatedly face conflicts between the rules of the make-believe situation and what they would do if they could act impulsively, and they usually decide in favor of the rules. When tired, Sophie’s teddy bear and leprechaun do not stay up doing just as they please. Instead, they obey their caregivers and go to bed. With only one lollipop, rather than quarreling and grabbing, the teddy bear and the leprechaun share.

According to Vygotsky (1930–1935/1978), children’s greatest self-control occurs during make-believe, when at their own initiative they renounce a momentary attraction in favor of rule-

governed behavior. The paradox of make-believe is that when children subordinate their actions to rules in everyday life, they usually give up something they want—instead of keeping a toy for themselves, they share it; instead of watching more TV, they go to bed. During pretense, however, renouncing impulse and following social rules, rather than frustrating or disappointing the child, is central to the pleasure of playing. Thus, subordinating immediate desires to the rules of make-believe becomes “a new form of desire” (p. 100)—one that responds to the child’s need to become an accepted member of her culture.

Indeed, informal observations of children’s pretense suggest that they rarely violate the rules of their social world. As preschoolers increasingly participate in sociodramatic play with peers, the complex negotiations they engage in to create play scenes, and the settings, actions, and conversations of those scenes, continually draw on cultural rules, conventions, and models of cooperation (Vygotsky, 1933, as cited by Ortega, 2003).

#### Research on Make-Believe Play and Self-Regulation

In line with Vygotsky’s emphasis on the development-enhancing, forward-moving consequences of make-believe, research confirms that preschoolers’ involvement in pretense is linked to wide-ranging favorable outcomes, including language and literacy development, understanding of mental states (false belief, emotions, and others’ perspectives), ability to distinguish appearance from reality, social competence, and divergent thinking (see, for example, Bergen & Mauer, 2000; Connolly & Doyle, 1984; Dansky, 1980; Ervin-Tripp, 1991; Kavanaugh & Engel, 1998; Lindsey & Colwell, 2003; Lloyd & Howe, 2003; Roskos & Neuman, 1998; Singer & Singer, 1990, 2005; Schwebel, Rosen, & Singer, 1999; Taylor & Carlson, 1997). Given that self-regulatory capacities are prerequisite to, and benefit from, these indicators of cognitive and social maturity (Bronson, 2001), the evidence is compatible with the notion that make-

believe play contributes importantly to self-regulation.

Yet these studies do not directly answer the question of whether participation in make-believe play fosters a self-regulated child. An emerging literature, including several of our own studies, supports the contributing role of make-believe.

### *Make-Believe Play and Private Speech*

In Vygotsky's (1930–1935/1978) theory, language is not only a major means through which culturally adaptive cognitive processes are transmitted to children, but also the primary vehicle for self-regulation. If Vygotsky theory is correct that make-believe assists children in overcoming impulse and managing their own behavior, then we might expect children's pretense to be especially rich in self-regulating language.

During the preschool years, private speech (or speech directed to the self) can be observed frequently; it accounts for 20 to 60 percent of preschoolers' utterances during play and other activities (Berk, 1992). Vygotsky explained that as more expert partners interact with children in ways that enhance their knowledge and understanding, children integrate those dialogues into their private speech. Over time, they weave into their self-talk an increasingly rich tapestry of voices from their social world (Wertsch, 1993)—a process that ensures transfer of values, strategies, and skills from the minds of one generation to the minds of the next.

Research confirms that private speech signifies that children are taking over the support provided by others and using it to guide and control their own thinking and behavior (see, for example, Furrow, 1992). Although self-talk takes many forms, in most instances preschoolers appear to be working through ideas, surmounting obstacles, mastering cognitive or social skills, or managing intense emotion (Berk, 1992, 2001). Many studies support the self-regulating function of private speech. For example, private speech increases under conditions of challenge.

Moreover, preschoolers and young school-age children who make self-guiding comments while working on challenging tasks are more attentive and involved and perform better than their less talkative agemates (Berk & Spuhl, 1995; Bivens & Berk, 1990; Winsler, Diaz, & Montero, 1997). In one investigation, 4- and 5-year-olds judged by their preschool teachers as good at regulating emotion used more private speech during free play, art, and puzzle activities than did classmates who were rated as poorly regulated (Broderick, 2001).

In a series of investigations, we examined the relationship of make-believe play to preschoolers' use of private speech. In the most extensive of these studies, Krafft and Berk (1998) observed children during free-choice periods in two preschools differing sharply in encouragement of imaginative play: the Y Preschool (called this because it is sponsored by the YWCA) and the Montessori Preschool. In the Y Preschool, play formed the basis of the daily program. Children had easy access to a wide variety of pretend-play props, and each classroom contained two centers especially conducive to sociodramatic play—a block-building area and a playhouse. The Montessori preschool, in contrast, actively discouraged make-believe (although not all Montessori schools do). Spurred by Montessori principles advocating realistic activities, the teachers set up “workstations” from which children selected table activities; typical options were puzzles, letter tracing, small construction blocks, containers with water for pouring, picture books, and materials for drawing and writing. When the Montessori children lapsed into make-believe, teachers often interrupted, drawing them back to workstation pursuits.

Time sampling observations were collected on 59 middle-SES 3- to 5-year-olds (approximately half in each preschool), with each child observed for 80 30-second intervals equally divided across four days. Findings revealed that the Montessori children, despite teacher discouragement, did engage in pretense, but at a sharply reduced rate; Y preschoolers displayed

nearly three times as much make-believe play (see Table 1). Private speech showed a parallel trend: Children in the Y preschool engaged in substantially more self-talk than their Montessori counterparts—in particular, role play verbalizations, which take the self or an object (such as a puppet or doll) as a partner; and self-guiding speech, in which the child thinks out loud by commenting on her activity and formulating plans for action (refer again to Table 1). Moreover, with verbal ability controlled (a correlate of both pretense and private speech), among children's free-choice pursuits, fantasy play emerged as the strongest correlate of total private speech ( $r = .59, p < .01$ ) and the two private speech subtypes just mentioned ( $r = .74, p < .001$ , and  $r = .27, p < .05$ ).

These findings indicate that the more children engaged in make-believe, the more they talked to themselves to work out pretend characters' actions and to guide their thought and behavior during realistic tasks. Moreover, the two subtypes of private speech were positively correlated,  $r = .42, p < .01$ . Overall, these findings suggest that private speech, so rich in the make-believe context, may carry over to and facilitate children's self-talk when they face real-world challenges.

As noted earlier, private speech increases with task difficulty; once preschoolers become more proficient at the puzzle, picture-arrangement, and other problem-solving tasks in which private speech has most often been observed, their audible, self-directed speech declines, abbreviating and becoming less audible (Duncan & Pratt, 1997; Patrick & Abravanel, 2000; see also Berk, 1992, 2001, for reviews). Yet private speech follows a decidedly different age-related course during make-believe play. Gillingham and Berk (1995) videotaped 30 middle-SES 2½- to 6-year-olds during a 9-minute play period in a laboratory liberally equipped with fantasy-play props. Children's private speech was coded into remarks (a word, phrase, or sentence uttered

without pause), and the amount of time they spent in two broad play categories was recorded: (a) simple play, involving inspection and manipulation of toys, and (b) complex play, consisting largely of make-believe. Although make-believe was the dominant form of play for children of all ages, it increased sharply and linearly between 2½ and 6. As in Krafft and Berk's research, the incidence of task-relevant private speech during make-believe was high, averaging 2.3 remarks per minute. Moreover, instead of diminishing, private speech remained at a comparably high level throughout the entire age range.

Our interpretation of this sustained, high incidence of private speech during make-believe across the preschool years is that children continually set challenges for themselves during pretense. In line with Vygotsky's theory, make-believe play creates a zone of proximal development in which preschoolers frequently call on self-directed language to work out their imaginings and bring behavior under the control of thought.

#### *Make-Believe Play and Emotional Self-Regulation*

Psychoanalytic theorists, and others, contend that pretend play, by offering children the opportunity to enact and modify an unlimited variety of emotional experiences, enables them to master negative affect in a safe context (Bretherton & Beeghly, 1989; Fein, 1989). The first systematic research to test this assumption reported confirming findings. Barnett and Storm (1981) randomly assigned 20 preschoolers to view a stressful movie scene (Lassie and her master became lost in a storm) and compared their subsequent play behavior to that of 20 controls, who viewed the scene and its positive resolution (Lassie and her master were safely reunited). Initial anxiety levels of the two groups, based on a physiological measure (palm sweating) and a self-report (selecting from very happy to very sad faces the one that represented how the child felt), were comparable, but as expected, anxiety in the stressful-movie group rose much more

following viewing. However, children in the movie-stressor group declined sharply in anxiety and negative emotion after the play period, during which they spent more time enacting events related to the Lassie scene than control children. In a second investigation, Barnett (1984) observed 74 3-year-olds as they exhibited distress at the departure of their mother on the first day of preschool. High- and low-anxious children, distinguished on the basis of observations (clinging, pleading, crying) and physiological reaction (palm sweating) participated in either a free-play or a story-reading session. Relative to the other children, anxious children in the play condition engaged in more play thematically directed at resolving conflict, and they also showed a greater decline in a physiological anxiety.

Recent findings are consistent with the notion that make-believe play is among the socialization experiences that contribute to an emotionally well-regulated child. High levels of sociodramatic play and conflict-resolution themes in play narratives are linked to good emotional self-regulation in preschoolers (Fantuzzo, Sekino, & Cohen, 2004; Lemche et al., 2003). Although many studies indicate that emotional self-regulation is essential for socially competent play behavior (Eisenberg, 1998, 2003), fewer have addressed the role of make-believe play in the development of emotional self-regulation. In one suggestive (but not conclusive) investigation, children who positively resolved an experimenter-induced, emotionally arousing make-believe event in a laboratory (a hungry crocodile puppet threatened to eat all the toys) so play could continue were rated by their parents as having more effective emotion-regulation skills in everyday life (Galyer & Evans, 2001). Additional evidence, reviewed in a later section, indicates that the thematic content of children's pretense has much to do with its power to enhance children's emotional (and other) self-regulatory skills.

*Make-Believe Play and Socially Responsible Behavior*

In two investigations, we explored whether participation in make-believe play influences preschoolers' performance on two naturalistic measures of self-regulation that tap socially responsible behavior: (a) the extent to which the child independently cleans up materials after free choice time in preschool (Alessandri, 1992; Kochanska, Murray, Jacques, Koenig, & Vandegest, 1996); and (b) the child's attentiveness and cooperativeness during circle time (Huston-Stein, Friedrich-Cofer, & Susman, 1977).

In the first of these studies (Elias & Berk, 2002), 51 middle-SES 3- and 4-year-olds were observed in their preschool classrooms during the fall (Time 1) and the spring (Time 2) of the school year. During the fall, each child's play in the block and housekeeping areas was observed for four 10-minute periods, each on a separate day, with time-sampling codes assessing the quantity and maturity of fantasy pursuits, based on the Smilansky Scale (Smilansky & Shefatya, 1990). In addition, during both the fall and the spring, observers rated children's behavior for self-regulatory maturity during four clean-up and four circle-time periods. We reasoned that a short-term prospective design, investigating relationships between play at Time 1 and change in self-regulatory competence from Time 1 to Time 2, would offer strong support for the beneficial effect of play on self-regulation.

In addition, during the fall, parents (either the mother or the father, depending on who served as the principal caregiver) were asked to rate their child's temperament using the Children's Behavior Questionnaire (CBQ; Rothbart, Ahadi, & Hersey, 1994). A high CBQ score indicates impulsivity; as early as the preschool years, impulsivity predicts greater likelihood of later externalizing behavior problems, including attention-deficit hyperactivity disorder (ADHD) and conduct disorder (Barkley, 2003). We were particularly interested in whether make-believe

play might strengthen self-regulation among these at-risk preschoolers, who tend to be delayed in development of both play and private speech (Alessandri, 1992; Berk, 2001; Berk & Potts, 1991; Berk & Landau, 1993).

Results confirmed the contribution of make-believe to future self-regulation: Controlling for verbal ability and fall self-regulation scores, time spent in complex sociodramatic play (involving object substitutions with language or toys that are not replicas of the object itself, peer interaction directed toward maintaining a joint make-believe goal, and verbal dialogue for pretend characters) was positively correlated with spring clean-up performance,  $r = .32, p < .05$ . (Similar results were not obtained for circle time; in this adult-directed activity, the teachers did much regulating of children's behavior by prompting those who were distracted to attend and participate, thereby making it difficult to access children's self-regulation.) Furthermore, as anticipated, children in the highest quartile in impulsivity scored lower than children in the lowest quartile in both clean-up and circle time self-regulation, as well as on a teacher rating of self-control. Yet when relationships between complex sociodramatic play and spring clean-up performance were computed separately for high-impulsive and low-impulsive preschoolers, the high-impulsive subgroup showed a strong positive correlation mirroring the relationship obtained for the sample as a whole,  $r = .81, p < .01$ ; in contrast, play and clean-up performance were unrelated for the low-impulsive children,  $r = .01, n.s.$ , with the difference between the correlations reaching significance,  $Z = 1.9, p < .05$ .

Our findings revealed that preschoolers who more often engaged in complex sociodramatic play showed greater improvement in social responsibility over the next 5 to 6 months. The sociodramatic play/self-regulation association was particularly strong for children judged by their parents to be highly impulsive—that is, who were poorly regulated to begin with.

Children most in need of enhancing their self-regulatory abilities were especially sensitive to the benefits of sociodramatic play.

In a second investigation, Harris and Berk (2003) focused on low-SES preschoolers, who often display language, cognitive, and self-regulatory deficits (Campbell, 1995). As with highly impulsive children in the Elias and Berk study, we reasoned that if, as Vygotsky's theory suggests, make-believe fosters self-regulation, then fantasy play experiences—in particular, sociodramatic play—may be especially important for self-regulatory development among children from impoverished families.

Participants were 19 4-year-olds in two Head Start classrooms. Again, we used a short-term prospective design, observing children's play and self-regulation, as assessed by clean-up performance, in the winter (Time 1) and re-observing clean-up performance 4 months later during the late spring (Time 2). Cross-study comparisons revealed that in comparison to middle-SES children, the Head Start participants scored low in language development and engaged in less make-believe play and less mature, cooperative play; in fact, they displayed only about one-fourth the joint, cooperative engagement typically observed among their middle-SES counterparts (Robinson, Anderson, Porter, Hart, & Wouden-Miller, 2003; Rubin, Watson, & Jambor, 1978).

Moreover, no form of make-believe play, including sociodramatic play, was positively associated with self-regulation in the Head Start sample. To the contrary, controlling for verbal ability and winter clean-up performance, sociodramatic play was negatively, but nonsignificantly, associated with late-spring clean-up performance,  $r = -.25$ . The observers informally noted that when the children gathered socially for pretense, they frequently enacted violent themes (e.g., fights, killings, robberies, and imprisonments), which may have contributed

both to their low incidence of play cooperation and to the lack of predictability from make-believe to self-regulation.

*The Importance of Make-Believe Themes*

Indeed, other evidence suggests that the content of pretense is vitally important in the make-believe play/self-regulation relationship. Dunn and Hughes (2001) recruited a sample of 80 preschoolers, half of whom were labeled “hard-to-manage” because, on the basis of maternal ratings, they scored above the 90th percentile in hyperactivity and above the 90th percentile in conduct disorder; the other half, the controls, scored below the 50th percentile on both measures. At age 4, with their closest friend, the children visited a playroom equipped with fantasy play props for two 20-minute sessions, where their play was videotaped and coded for pretend themes and interactive behavior. The children also responded to an additional battery of tasks; several assessed “executive function,” or self-regulatory, competencies, including inhibitory control (capacity to suppress maladaptive responses), planning, and flexibility of attention. Two years later, at age 6, the children were given a measure of sociomoral maturity, in which they responded to stories designed to reveal their understanding of the emotional consequences of prosocial acts and transgressions.

Interactions involving violent themes were three times more frequent in the play of the hard-to-manage than the control children. Moreover, engaging in much fantasizing containing violence was linked to poorer performance on executive function measures, with correlations in the .20s,  $p < .05$ , that remained significant after the researchers controlled for language ability. Thematically violent play also predicted negative social behavior: The more such pretense children exhibited, the more conflict-ridden, poorly coordinated, and antisocial their interactions with their friend became, with correlations ranging from the .30s to the .40s,  $p < .05$ . Children

high in violent pretense appeared particularly deficient in emotional self-regulation; they were more often angry, less often positive, and more often bullied, teased, and broke rules outside the make-believe scenarios. Moreover, their violent make-believe did not occur at the instigation of, nor was it exacerbated by, the behavior of their play partners; the correlation between the violent pretense of the participants and their friends was nonsignificant.

Impressive evidence for the potential of violent imaginative play to undermine self-regulation emerged in a prospective analysis, in which the investigators examined the relationship between make-believe with themes of violence at age 4 and moral sensibilities 2 years later. Children high in violent pretense were less likely as 6-year-olds to respond empathically toward victims who had been harmed by others and, in their accounts of perpetrators' feelings, more often gave hedonistic answers ("He'll be happy because he got what he wanted.") and external answers ("He'll be sad because the teacher will be cross.") than remorseful answers ("He'll feel sad because he hurt someone."). Violent make-believe themes made a significant, unique contribution to later individual differences in moral maturity, even after verbal ability and a variety of other 4-year-old measures, including antisocial interaction and emotional self-regulation, were controlled,  $r^2 = .22, p < .05$ .

When predictions from violent make-believe were examined separately for the hard-to-manage and the control children, the patterns of correlations were similar, although they were not significant for the controls, who rarely generated violent images during pretense. The researchers noted that control children were especially likely to engage in play involving elaborate narrative stories, such as Little Red Riding Hood, Peter Pan, and Sleeping Beauty, as well as fantastic role play in which children transformed themselves into kings, queens, and animals. Indeed, the more children engaged in play of this kind, the higher their verbal ability and the less violent

their fantasy themes. Such narrative play—which most preschoolers find highly involving and enjoyable—may be an especially conducive context for self-regulatory development, particularly among children with self-control deficits.

In sum, as Dunn and Hughes's research makes clear, not all make-believe enhances self-regulation. Children draw their play themes from their sociocultural world; those that prevailed in the play of hard-to-manage preschoolers were selfish, inconsiderate, and destructive, perhaps because of a history of unfavorable family and/or media experiences. Consistent with this possibility, in an early study of family and media predictors of preschoolers' play qualities, Singer and Singer (1981) reported that 3- and 4-year-olds high in aggressive play, compared with children who rarely played aggressively, were exposed to more arguing in their homes (especially physical fighting), were more often physically punished, more often watched action TV shows high in violence, and less often viewed "peaceful" educational TV programs. Furthermore, aggressive children who watched extensive amounts of TV (averaging more than 50 hours per week) tended to come from disorganized home with few routines (such as bedtime stories) and family activities (such as trips to museums or other cultural activities) that might inspire positive play themes. Taken together, the findings underscore the importance of fostering elaborate, prosocial make-believe during the preschool years, and of intervening when children's play themes become antisocial (see also Chapter \_\_).

#### Adult Scaffolding of Children's Make-Believe Play

Expert partners—in Western societies, typically parents, but also older siblings—scaffold toddlers' and young preschoolers' make-believe. From these interactions, children derive many skills that enhance their play in other contexts. Make-believe, like other complex mental functions, is socially constructed and transferred to children (El'konin, 1978; Garvey, 1990;

Smolucha & Smolucha, 1998).

In a longitudinal study tracing the development of make-believe, Haight and Miller (1993) followed nine children from 1 to 4 years of age, repeatedly visiting their homes to gather observations of their pretense. They found that the majority of make-believe was social across the entire age span. From ages 1 to 3, mothers were the children's principal play partners. Over time, mother-child play declined and child-child play increased; by age 4, children played about equally with their mothers and with other children—both siblings and peers.

Furthermore, Haight and Miller and other researchers report clear evidence that mothers teach their toddlers to pretend. During the first half of the second year, mothers initiate almost all make-believe episodes; they also demonstrate many pretend actions toward objects, showing children how to use one object to represent another (Miller & Garvey, 1984; Smolucha & Smolucha, 1998). Around age 2, mothers begin to talk about nonexistent fantasy objects, a change that may help children increase the range and complexity of their play symbols during the third year (Kavanaugh, Whittington, & Cerbone, 1983).

While children's play skills are limited, adult scaffolding makes make-believe more interesting, surprising, and absorbing—undoubtedly among the reasons 1- to 3-year-olds prefer to play with their mothers, even when peers and siblings are available (Haight & Miller, 1993). During the second and third years, caregiver support results in more extended and complex pretense (O'Connell & Bretherton, 1984; Slade, 1987; O'Reilly & Bornstein, 1993; Zukow, 1986). As an illustration of the influence of adult scaffolding on the duration and complexity of make-believe, 2½-year-old Sophie's and her father Kevin's joint play narrative, excerpted in an earlier section, persisted for nearly an hour—many times longer than Sophie had ever played on her own. Moreover, Haight and Miller found that parent-child make-believe served a wide

variety of social purposes, including helping children manage their emotions and impulses and encouraging socially mature behavior.

In Sophie and Kevin's play episode, Kevin sensitively responded to and extended Sophie's play behaviors. He strove for intersubjectivity with Sophie, who readily picked up on Kevin's contributions, which yielded a smoothly functioning, elaborate play dialogue. Adult participation in make-believe that acknowledges and builds on toddlers' play behaviors through demonstrations, suggestions, turn taking, and joint involvement, is particularly effective in fostering mature make-believe. In contrast, directions and intrusions (initiating a new activity unrelated to the child's current play) are associated with immature play behavior, in which toddlers merely mouth, touch, and look at toys (Fiese, 1990). In a longitudinal study, Stilson & Harding (1997) found that maternal interactions that suggested play options related to 1½-year-olds' ongoing activity (saying "Oh, is the doll trying to swim?" as the child puts a doll into a cup) continued to predict extended play sequences and imaginative object substitutions at age 3. In contrast, toddlers whose mothers frequently negated, corrected, and directed ("No, dolls don't go in cups, they go in the doll house") tended to become 3-year-olds who spent much time in simple, immature manipulation of toys. With slightly older children, Shmukler (1981) reported similar findings: During an unstructured play session, 5-year-olds whose mothers gave them "psychological space" to express themselves engaged in more creative, expressive, and socially competent pretense than children whose mothers frequently instructed or otherwise controlled their play.

During the first year, mutually rewarding intersubjective interaction between mother and infant—involving well-organized, face-to-face exchanges of emotion and consistent parental acknowledgment of infant expressiveness—predicts complexity of mother-child pretense and

children's use of mental state words (“pretend,” “feel,” “imagine”) during play at age 2 (Feldman & Greenbaum, 1997). Parental behaviors that assist infants in “connecting” socially seem to enhance children's later play competence and ability to reflect on and talk with others about thoughts and feelings. In sum, quality of adult–child social engagement, both within and outside make-believe, has much to do with the potential of such play to blossom into a cognitively and socially constructive force that leads development forward.

#### Supporting Make-Believe Play and Self-Regulation in Early Childhood

Children devote less time to make-believe in village cultures, where beginning in toddlerhood, they observe and—as soon as their capacities permit—participate in the daily activities of adults (Gaskins, 2000; Morelli, Rogoff, & Angelillo, 2003). In Western societies, children are largely excluded from adult pursuits. The ubiquitous and compelling nature of Western children's make-believe suggests that it substitutes for their restricted access to the adult world. In make-believe, children come to appreciate society's norms and, in striving to uphold those norms, learn to regulate emotion, thought, and behavior in the service of constructive social goals.

Moreover, the features of make-believe—child-controlled, rich in social engagement and language, and attuned to the child's interests—are ideal for stimulating changes in the cerebral cortex that underlie the development of self-regulation (Thompson, 2004). The young brain undergoes *experience-expectant growth*—growth that results from exploration of the environment and from opportunities to communicate with and share daily routines with caregivers. Such growth lays the foundation for later-occurring *experience-dependent growth*, which gives rise to specialized skills through intensive effort and practice (Greenough & Black, 1992; Huttenlocher, 2002). Children's engagement in pretense is consistent with the experience-

expectant processes known to prepare the brain for later systematic, focused learning, of the kind that will take place in school.

Clearly, efforts to foster young children's make-believe are vital. We offer the following recommendations for policy and practice:

1. *Community contexts and expert child-rearing advice that promote make-believe play.*

Surveys of nationally representative samples reveal that compared with American parents of a generation ago, today's overly busy, pressured parents spend fewer leisure hours conversing and playing with their children (Hofferth & Sandberg, 1999; Schor, 2002). Preschools, child-care centers, recreation programs, and children's museums are in a prime position to disseminate research-based information to parents about the importance of scaffolding young children's play, and to arrange opportunities for adult-child playful collaboration.

In a recent study, we recorded how adults and children representing a socioeconomic cross-section of a Midwestern small city spent time while visiting a local children's museum (Mann, Braswell, & Berk, 2005). A range of museum exhibits—a post office, a grocery store, a flower shop, a farm, a kitchen, medical offices, a train depot, a gas station—represented the child's community. Many other exhibits offered additional experiences with construction, science, art, and literacy (for example, a robotics table, a paint wall, and reading and poetry corners). Posted on walls were messages encouraging parents to engage with their children. We observed each of 160 adult-child dyads for 10 minutes, coding every 30 seconds for the child's activity (make-believe, construction, art, physical play, onlooker, transition, disengaged) and adult action toward the child (directing to an activity, imparting exhibit-related information, jointly engaging in the activity, disciplining, watching, giving affection, or absence from the child's activity).

The majority of child visitors (63 percent) were preschoolers and kindergartners between ages 3 and 6; the remaining visitors were evenly divided between toddlers (18 percent) and 7- to 12-year-old schoolchildren (19 percent). Most children—62 percent—came with their mothers; 16 percent came with their fathers, and 22 percent with other adults, mostly grandmothers. Across the entire age range, make-believe was the most common activity, consuming 38 percent of children's time. The next most frequent activity was physical play (30 percent), followed by construction and art, which occurred considerably less often (12 and 10 percent, respectively). Only rarely were children passive onlookers (5 percent) or in transition or disengaged (5 percent). Furthermore, children took the lead in selecting activities; adults were seen directing them less than 4 percent of the time. The most frequently observed adult action, by far, was joint activity (47 percent), followed by watching the child at play (28 percent). Irrespective of their child's age, parents spent slightly more than half the time jointly engaged, less often watching and imparting information than other adults,  $F_s = 2.3$  and  $3.5$ ,  $p < .05$ .

As our museum study illustrates, in a relaxed, encouraging context, parents readily pretend with their children—and do so as often with school-age youngsters as with toddlers and preschoolers! Today's parents may be especially receptive to information on how and why to engage in such play. Survey results indicate that 61 percent are critical of their own efforts—judge the job they are doing with their own children as “fair” or “poor” (Public Agenda, 2002; see also Chapter \_\_). Moreover, in recent years, parental reports of child problematic behaviors, from disinterest in school to emotional and behavior problems, have risen—a circumstance that has magnified parents' desire for expert counsel on how to rear children effectively (Vandivere, Gallagher, & Moore, 2004). Clearly, make-believe play merits a center-stage role in the early childhood, parenting-advice literature.

2. *Teaching through play in early childhood classrooms.* The increasing focus of American education on test score gains, and associated narrowing of experiences in many preschool and primary classrooms to academic tutoring, are undermining children's self-regulatory capacities. When preschoolers and kindergartners spend much time sitting and doing worksheets, as opposed to being actively engaged in play-based learning, they become inattentive and restless, express doubt about their abilities, prefer less challenging tasks, and are less advanced in motor, academic, language, and social skills at the end of the school year. Follow-ups through third grade reveal lasting, negative consequences, including poorer study habits and achievement and a rise in distractibility, hyperactivity, and peer aggression over time (Burts et al., 1992; Hart, Burts, Durland, Charlesworth, DeWolf, & Fleege, 1998; Hart, Yang, Charlesworth, & Burts, 2003; Hirsh-Pasek & Golinkoff, 2003; Singer & Singer, 2005).

Most preschool and primary teachers know, on the basis of their training and experience, that play is a vital source of learning. When asked, they report that play promotes a wide range of favorable outcomes, including self-confidence and self-esteem, independence, responsibility, language, and social skills. Yet they also say that increasing pressures for curriculum coverage and for test-based evidence of children's academic progress lead at best, to competition between teacher-directed instruction and play, and at worst, to play being squeezed out of classroom activities. Moreover, despite teachers' certainty about the importance of play, their conceptions of play and academic work are often bipolar, with play deemed enjoyable and academic work deemed serious (Bennett, Wood, & Rogers, 1999; Owles, 2000).

Furthermore, teachers often adopt a noninterventionist approach to children's play. In doing so, they discover that many children—especially those with little history of collaborative make-believe—need assistance in generating positive play themes, following through with play

plans, negotiating with peers, and resolving conflicts. Unfortunately, children who stand to benefit most from teacher-scaffolded play are the least likely to receive it. School administrators and teachers tend to prefer academic tutoring for economically disadvantaged children, despite its established, negative impact on academic and social adjustment (Stipek & Byler, 1997).

Combating the rising tide of developmentally inappropriate practice and restoring play to a central position in early childhood education will require vigorous, unified efforts on the part of leaders in the fields of child development and education (Zigler & Bishop-Josef, 2004). Play researchers can contribute greatly by disseminating their findings in understandable, applied ways to administrators, teachers, and the general public. Connecting with practitioners and everyday citizens has yet to become an esteemed endeavor among scholars of child development, but some investigators are nevertheless doing so, and fortunately so, as a groundswell of scholarly voices is indispensable for reestablishing and ensuring children's access to play-based learning.

*3. Make-believe play interventions for children with self-regulatory deficits.* In Elias and Berk's (2002) research, the relationship between sociodramatic play and gains in self-regulation was especially strong for highly impulsive preschoolers. Such children, who often display limited, thematically antisocial pretense, benefit greatly from adult-scaffolded play interventions. An extensive literature on play training, mostly conducted with low-SES preschoolers, reveals that children with weak play skills who receive adult encouragement to engage in make-believe, relative to alternative-activity or no-play controls, show gains in sociodramatic play, imaginativeness of play content, mental test scores, impulse control, coherence of storytelling, and capacity to empathize with others (Dansky, 1980; Feitelson & Ross, 1973; Freyberg, 1973; Saltz & Johnson, 1977).

At the same time, play training is beneficial only when the strategies interveners use are developmentally appropriate. In one of our investigations (Ogan, 2005), 38 4- and 5-year-olds enrolled in a Head Start program whose pretense was high in antisocial themes (on average, the children enacted an antisocial event once every 6 minutes in free play) were given a battery of seven self-regulation measures tapping their capacity to control their own behavior (speed up, slow down, or inhibit), cooperate with others (take turns and share with a partner), and plan the best way to gather items in a play grocery store (see Gauvain & Rogoff, 1989; Kochanska et al., 1996; Murray & Kochanska, 2002). Then the children were randomly assigned to one of two conditions, in which they received eight weekly 30-minute individual play training sessions: (a) adult-directed make-believe, in which a research assistant presented the child with a prosocial play theme, coached the child in enacting the theme with specific instructions, and corrected any socially inappropriate behavior by showing the child how to reenact events in alternative ways, and (b) adult-supported make-believe, in which a research-assistant permitted the child to create a make-believe scenario, joined in at the invitation of the child, and interrupted the child's play only when it became antisocial. After each play-training session, children were given a period of free play with the toys. Then, immediately after the conclusion of play training and at one-month follow-up, the battery of self-regulation measures was readministered.

Findings confirmed the benefits of sensitive, responsive adult scaffolding of make-believe, discussed earlier in this chapter. First, adult-direction constricted the children's spontaneous play; children in the adult-directed condition spent less free-play time in make-believe and more than twice as much time unoccupied as did children in the adult-supported condition. Second, immediate and follow-up gains in self-regulation consistently favored the adult-supported condition. Children receiving gentle encouragement to pretend, by an adult who

capitalized on the child's contribution, showed greater improvement on diverse measures of self-regulation, including modulation of speed of behavior, inhibition of impulse, and planning.

In sum, a wealth of evidence justifies protecting, supporting, and enlarging the young child's "house of make-believe" (Singer & Singer, 1990). Imaginative play provides a firm foundation for all aspects of psychological development. Rich opportunities for make-believe, sensitively nurtured by parents, caregivers, and teachers, are among the best ways to ensure that young children acquire the self-regulatory skills essential for succeeding in school, academically and socially.

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Table 1

*Relationship of Type of Preschool to Make-Believe Play and Private Speech*

	Montessori Preschool		Y Preschool		F(1,52)
	M	SD	M	SD	
Make-Believe Play	11.6	8.2	32.6	15.9	49.8**
Total Private Speech	17.1	9.3	34.8	13.5	25.4**
Role-Play Private Speech	3.5	4.8	12.6	9.3	20.3**
Describing Own Activity/Self-Guidance	3.2	3.1	4.6	3.4	4.5*

*Note.* Means indicate number of observation intervals, out of 80, in which make-believe play and private speech occurred.

\* $p < .05$ . \*\* $p < .01$ .