The Development of Competence in Favorable and Unfavorable Environments

Lessons From Research on Successful Children

Ann S. Masten   University of Minnesota, Twin Cities Campus
J. Douglas Coatsworth   University of Miami School of Medicine

The development of competence holds great interest for parents and society alike. This article considers implications from research on competence and resilience in children and adolescents for policy and interventions designed to foster better outcomes among children at risk. Foundations of competence in early development are discussed, focusing on the role of attachment relationships and self-regulation. Results from studies of competence in the domains of peer relations, conduct, school, work, and activities are highlighted. Lessons are drawn from studies of naturally occurring resilience among children at risk because of disadvantage or trauma and also from efforts to deliberately alter the course of competence through early childhood education and preventive interventions. Converging evidence suggests that the same powerful adaptive systems protect development in both favorable and unfavorable environments.

It is critical to the future of a society that its children become competent adults and productive citizens. Thus, society and parents share a stake in the development of competence and in understanding the processes that facilitate and undermine it. Research on competence builds a fundamental knowledge base for policies and programs that aim to promote successful development. Moreover, when large numbers of a society's children must overcome hazards or disadvantage to become competent, it becomes particularly important to understand how competence is achieved in the context of adversity.

Over the past 25 years, signs of trouble emerged for child development in the United States, spurring considerable attention to the status of children in terms of school success, behavior, and physical and mental health, and growing interest in the origins of competence in development. High risks for children have been apparent in rates of divorce, births to single parents, teenage pregnancy, child abuse, homelessness and poverty among young families with children, and surges in problems like suicide, substance abuse, and violence (Dryfoos, 1990; Hamburg, 1992; Huston, 1991; Lerner, 1995; Masten, 1992; National Research Council, 1993a, 1993b). Concerns about the American educational system surfaced (National Commission on Excellence in Education,

1983), and crossnational comparisons of academic performance indicated that American children were falling behind (Stevenson & Stigler, 1992).

It was probably not a coincidence that these same years witnessed the emergence of *resilience* as a topic of great interest to scientists and the public (Masten, 1994, in press-b). The study of resilience—how children overcome adversity to achieve good developmental outcomes—arose from the study of risk as pioneering investigators realized that there were children flourishing in the midst of adversity (Anthony, 1974; Garmezy, 1974; Murphy & Moriarty, 1976; Rutter, 1979; Werner & Smith, 1982). These pioneers recognized that such children could teach us better ways to reduce risk, promote competence, and shift the course of development in more positive directions (Masten, in press-b).

This article highlights findings from recent studies of competence and resilience that have implications for social policy. First, these topics are defined. Then, we consider the origins of competence in early childhood when many of the tools for good adaptation are shaped by interactions between children and their environments. Next, we overview recent research on the development of competence from middle childhood through adolescence, during the school years, when pathways toward and away from competence become more evident. In the last two sections, we discuss what has been learned from studies of naturally occurring resilience and from efforts to deliberately alter the course of competence through intervention and prevention.

Ann S. Masten, Institute of Child Development, University of Minnesota, Twin Cities Campus; J. Douglas Coatsworth, Center for Family Studies, University of Miami School of Medicine.

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Correspondence concerning this article should be addressed to Ann S. Masten, Institute of Child Development, 51 East River Road, University of Minnesota, Twin Cities Campus, Minneapolis, MN 55455-0345. Electronic mail may be sent to amasten@vx.cis.umn.edu.

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Ann S. Masten
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Department of
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Definitions of Competence and Resilience

Competence has numerous meanings in psychology, but generally it refers to a pattern of effective adaptation in the environment, either broadly defined in terms of reasonable success with major developmental tasks expected for a person of a given age and gender in the context of his or her culture, society, and time, or more narrowly defined in terms of specific domains of achievement, such as academics, peer acceptance, or athletics (see Masten & Coatsworth, 1995). It carries the dual meaning that there is a track record of such achievement (competent performance) and also that the individual has the capability to perform well in the future. It refers to good adaptation and not necessarily to superb achievement.

Competence results from complex interactions between a child and his or her environment; thus, it will change as the child develops and changes or when the context changes. A child is a living system, embedded within many other systems, such as families and schools. As children grow up, the contexts in which they must function will change, and the challenges they must negotiate to demonstrate competence will differ.

Both the child's capabilities and the nature of the contexts in which the child lives will influence competence. Although a child must act to demonstrate competence, it is also true that environments afford competence. A child can perform at a more advanced level with structure and support provided by a proficient adult, a process known as *scaffolding* (Vygotsky, 1978), enabling a child to function at the growing edge of his or her capabilities. Moreover, the same child could be judged as competent in one context and incompetent in another. Similarly, a capable child may not be successful in a current ecologi-
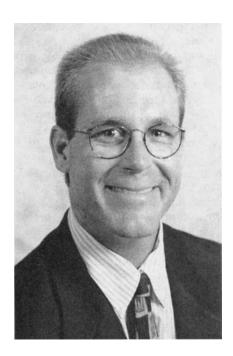
cal setting because of barriers to opportunities for action, as might occur for an oppressed group within a society. If the goal is to change the competence of children, multiply directed strategies need to be considered ranging from efforts to change child capabilities (e.g., tutoring) to interventions directed at the context (e.g., parent education or school reform or opening of opportunities) to those directed at finding a better fit between a child and his or her context (e.g., changing schools).

Resilience also has had varied meanings, but it generally refers to manifested competence in the context of significant challenges to adaptation or development. One of the most important questions about the development of competence is whether there is something unique or special about resilient children that has enabled them to overcome adversity to achieve competence when other children have floundered. To identify resilience, two judgments are required: first, that there has been a significant threat to the individual, typically indexed by high-risk status (e.g., born in poverty to a single parent who has not finished high school) or exposure to severe adversity or trauma (e.g., family violence, war, death of a parent); and second, that the quality of adaptation or development is good.

Developmental Tasks

How do we know that a child is doing well? Evaluations of how a child is doing in life generally reflect expectations based on pooled knowledge about child development that are culturally transmitted from one generation to the next. The expectations and concerns of parents, teachers, and others important to the lives of children will reflect these expectations, as will popular culture (e.g., the milestones noted in baby books).

The criteria for judging competence can be very specific and narrow in focus or as plentiful and broad as the full range of human activities. A child can be judged to be a competent pianist or soccer player. However, there is a much smaller set of criteria common across many parents, communities, cultures, and measures that reflect major tasks of adaptation spanning development and the key criteria by which adjustment in society is assessed. Such criteria have come to be called *developmental tasks* (Havighurst, 1972). Numerous lists of developmental tasks have appeared over the years. Table 1 indicates psychosocial tasks of childhood and adolescence commonly found on these lists (Erikson, 1963, 1968; Havighurst, 1972; Hill, 1980; Klaczynski, 1990; Masten & Braswell, 1991; Sroufe, 1979; Waters & Sroufe, 1983). These developmental tasks reflect several broad domains of competence in the environment and, within each domain, a developmental progression. Thus, for example, one fundamental domain is conduct (how well one follows the rules). Early in childhood, children are expected to begin controlling their behavior and complying with parental directives. Later, as they enter school, they are expected to learn and follow the rules for classroom conduct and refrain from striking out at people in a disagreement. By adolescence, they are expected to follow the

**J. Douglas
Coatsworth**

rules of schools, home, and society without direct supervision. By middle childhood, academic achievement is an important domain of success for children in many societies; it continues to be important in adolescence, with the quality of expected performance continually rising. Getting along with other children becomes a salient domain by middle childhood, initially in terms of peer acceptance and later in terms of developing friendships and romantic relationships. Within the organism, the *self-domain* is the most common task arena, first in the form of self-differentiation from the environment and later in terms of identity and autonomy.

Developmental tasks reflect both universal human phenomena in development, such as attachments to caregivers and language, as well as more culturally or historically specific tasks that are not universal. School achievement, for example, is salient in many cultures, but not in all. Individual identity as a task may have more prominence in cultures that emphasize individualism and autonomy than in those that emphasize community and belonging (Oerter, 1986).

Deciding whether a child is competent can be difficult when a child lives in a cultural or community context that differs markedly from the larger society in which the community or cultural group is embedded. Children may live in highly dangerous inner-city neighborhoods where survival could depend on behavior viewed as inappropriate in mainstream society (Coll et al., 1996). Ogbu (1981, 1986) has argued that African American ghetto youth barred from opportunities in mainstream society may seek achievement in alternative economic and social structures represented by illegal activities and gangs. Ethnographic studies also have suggested that urban African American adolescents and their parents may use different criteria for successful developmental outcomes, what

Burton and her colleagues have termed the "Revised American Dream" resulting from severe restrictions in opportunities (Burton, Allison, & Obeidallah, 1995; Burton, Obeidallah, & Allison, 1996). It is important that policymakers and those who intend to intervene in children's lives remember that families in a given community may have different values and expectations for competence.

Foundations of Competence in Early Development

Rapidly expanding knowledge about early child development indicates the importance of the early childhood years as a foundation for later competence. The early development of motor skills, language, self-confidence, play, and problem-solving abilities, for example, are relevant for understanding competence in the school years. Underlying these capabilities is a developing brain. Recent studies of humans and other species have made it clear that the developing brain is profoundly responsive to experience (Nelson & Bloom, 1997). Both structure and function are affected by experience, a phenomenon known as *plasticity* (Cicchetti & Tucker, 1994; Nelson & Bloom, 1997). Advances in developmental neuroscience are likely to have exciting implications for the study of competence and, in particular, for intervention. Interven-

Table 1
Examples of Developmental Tasks

Age period	Task
Infancy to preschool	Attachment to caregiver(s)
	Language
	Differentiation of self from environment
	Self-control and compliance
Middle childhood	School adjustment (attendance, appropriate conduct)
	Academic achievement (e.g., learning to read, do arithmetic)
	Getting along with peers (acceptance, making friends)
	Rule-governed conduct (following rules of society for moral behavior and prosocial conduct)
Adolescence	Successful transition to secondary schooling
	Academic achievement (learning skills needed for higher education or work)
	Involvement in extracurricular activities (e.g., athletics, clubs)
	Forming close friendships within and across gender
	Forming a cohesive sense of self: identity

tion depends on plasticity because lasting changes in behavior depend on the modifiability of brain function (Nelson, in press).

Motivational systems also are clearly central to human competence. Babies appear to be delighted by exercising new-found skills like blowing bubbles, making sounds, or dropping food off the high chair, whereas older children find pleasure in activities like singing nonsense songs, making jokes, solving puzzles, or riding a bike. In a landmark article, Robert White (1959) argued that there is a mastery motivation system inherent in our species, which is readily observable in the inclination of young children to actively engage with the environment and to experience pleasure (feelings of efficacy) from effective interactions. In other words, competence is motivated by pleasure in mastery. Studies have shown that babies not only exhibit the behaviors associated with mastery motivation but that their behaviors begin to be affected by cognitive appraisals of likely success at an early age. Thus, a two-year-old shows distress when an adult models a task the child realizes that he or she cannot do (Kagan, 1984). The role of perceived self-efficacy and other perceptions about one's ability and control have been the subject of considerable research among older children; it is clear that children's beliefs about their own success affect their behavior (Henderson & Dweck, 1990; Skinner, 1995).

All of the relevant systems for competence that develop in early childhood could not possibly be addressed in this article. We focus on two that have received considerable attention in recent years, show significance for competence in multiple domains, and have potential as modifiable influences on a child's competence: relationships with caring adults and self-regulation.

Relationships With Caring Adults: The Attachment System

Under normal conditions, infants have considerable power to elicit assistance from older members of the species, particularly parents, in securing help for negotiating the demands of their environments, in regulating their emotion and behavior in reaction to environmental stimulation, and in honing skills they will need for success in later developmental tasks. Infant competence is embedded in the caregiving system; thus, developmentalists have described a "competent mother-infant pair" where the infant is competent with respect to securing what he or she needs by influencing the behavior of a responsive mother (Ainsworth & Bell, 1974).

The caregiving or attachment system is widely believed to serve multiple functions beyond physical care, including the soothing and stimulation of emotions by the caregiver who is helping an infant regulate emotion until the child learns to self-regulate, and providing a secure base of operations for young children to explore the environment (Carlson & Sroufe, 1995). There is evidence that the quality of these special relationships has predictive significance for success in later developmental tasks, such as better problem solving in toddlers and

better peer relations in middle childhood (Carlson & Sroufe, 1995). Longitudinal studies of competent children and adolescents who have experienced severe adversity also strongly indicate the importance of caregiver relationships for successful adaptation (Masten, 1994).

When there is little observable evidence that a specific attachment bond has formed between an infant or toddler and the caregiver(s), as may occur in cases of autistic disorder or in situations of extreme neglect, observers become alarmed and appropriately so. This system is so basic and universal that lack of behavior associated with attachment usually occurs when there is something fundamentally wrong with the organism or the environment, with high risk for adaptive failure. The emergence of this system is clearly a critical foundation for competence in our species; therefore, fostering strong and healthy relationships between children and their caregivers is a key strategy for intervention.

Self-Regulation

In the context of their relationships with adults, young children also begin to acquire another set of tools that enable them to control their behavior in numerous ways. They gain increasing control over their attention, emotions, and behavior, a set of skills known as self-regulation (Cicchetti & Tucker, 1994; Pennington & Welsh, 1995; Rothbart & Bates, 1998), which has historical roots in concepts like the ego, ego resiliency, and ego control (Block & Block, 1980).

In the first few years of life, children ordinarily become better at directing their attention, enabling them to shift or focus their attention more readily or to persist in attending, skills that will help them function in a classroom or a play activity with peers. Later in development, good attention regulation has been linked to prosocial behavior and peer popularity, whereas difficulties in regulating attention have been linked to attention-deficit/hyperactivity disorder (ADHD), antisocial behavior, and academic problems (Eisenberg, Fabes, et al., 1997; Eisenberg, Guthrie, et al., 1997; Hinshaw, 1992; Hinshaw, Zupan, Simmel, Nigg, & Melnick, 1997; Lynam, 1996; Rothbart & Bates, 1998; Zahn-Waxler, Cole, Welsh, & Fox, 1995). Thus, attention regulation appears to be linked with the development of competence in multiple domains from an early age.

Difficulty regulating negative emotions also has been linked to problems in children (Rothbart & Bates, 1998). Some children appear to be prone to experience negative emotions such as anxiety and distress. They are easily upset and do not regroup as readily from stressful experiences. Aggressive and disruptive behavior problems have been directly linked in a number of studies to negative emotional reactivity, irritability, or difficult temperament in infancy and childhood (Rothbart & Bates, 1998). Social competence, on the other hand, is associated with a history of lower stress reactivity and higher self-control of attention and behavior (Eisenberg, Fabes, et al., 1997), as well as the tendency to express

positive emotion and to be sociable and agreeable (Rothbart & Bates, 1998).

Compliance and prosocial behavior are additional areas of self-regulation fundamental to successful functioning in society. Self-control, which is a necessary precursor for rule-governed behavior, begins to emerge in the second year of life, as does expressed concern for others (Eisenberg & Fabes, 1998; Hartup & van Lieshout, 1995; Sroufe, 1996; Zahn-Waxler, Radke-Yarrow, Wagner, & Chapman, 1992). Parents begin to communicate rules and expectations in the second year of their children's lives, initially with requests focused on safety and later with requests focused on family and cultural standards (Gralinski & Kopp, 1993). Children learn early rules through the routines of family life (Schaffer, 1996). Children are expected to become reasonably compliant with parent requests and to internalize the family standards for behavior so that they comply in the absence of supervision. Self-control of this kind becomes evident during the third year of life (Schaffer, 1996). Sensitive and consistent caregiving and warm but firm parenting styles have been associated with the development of self-control and compliance to social rules, whereas power-assertive methods of controlling child behavior (especially with hostile affect) generally have been associated with less compliance and less internalization of standards in children (Schaffer, 1996).

Failure to develop compliance in the early years of life may seriously compromise later social functioning at school and with peers. Patterson and his colleagues at the Oregon Social Learning Center have chronicled how extreme noncompliance related to coercive interactions between parents and children sets the stage for aggressive, disruptive behavior in classrooms and peer interactions that can lead to peer rejection and academic problems and, eventually for some children, to association with deviant peers who encourage further antisocial behavior (Patterson, 1986; Patterson, Reid, & Dishion, 1992). Much of the intervention work by these investigators has focused on improving compliance through a variety of behavioral strategies.

The work on self-regulation as a whole strongly suggests that these skills are extremely important for the development of competence, begin to emerge in early childhood, and are shaped by a child's experience as well as his or her disposition. A cranky baby may elicit different care from a parent, and a parent's behavior may increase or decrease an infant's proneness to distress, such that both parties influence the quality of their relationship (van den Boom, 1994). Their relationship in turn can then help or hinder the development of self-regulation (Goldsmith & Harman, 1994; Jacobvitz & Sroufe, 1987; Kochanska, 1995). This may be one example of how the brain is shaped by experience in these early years. Moreover, if self-regulation can be influenced by experience, then there is a window of opportunity in early childhood to strengthen skills that will be important for multiple domains of competence.

Competence in the School Years

When children enter school, they face new challenges and a new world of expectations outside the family. Some children bring a strong set of skills, motivations, and self-perceptions that will facilitate learning and relationships; others bring behavior or self-regulation problems and negative expectations for self or others that will hinder learning and friendships. This section highlights research on three hallmarks of success in middle childhood and adolescence as children negotiate the school years: peer relations, rule-governed behavior, and academic achievement.

Social Competence With Peers

How children get along with other children has been studied for many years as an indicator of current and future competence (Hartup, 1983). In school-aged children, peer acceptance and popularity have been associated with better achievement, higher IQ, and many other positive attributes, including a history of positive parenting (Hartup, 1983; Masten, Morison, & Pellegrini, 1985; Newcomb, Bukowski, & Pattee, 1993). Positive peer reputation predicts future social competence with peers, achievement, job competence, extracurricular activities, self-worth, and better mental health (Masten & Coatsworth, 1995; Parker, Rubin, Price, & DeRosier, 1995). Concomitantly, peer rejection has been associated with aggressive and disruptive behavior, externalizing disorders such as ADHD and conduct disorder, poor achievement, and a history of negative parenting (Cicchetti & Bukowski, 1995; Hartup, 1983; Masten & Coatsworth, 1995; Newcomb et al., 1993). Peer difficulties also predict future maladjustment (Parker et al., 1995).

Rejected children are typically aggressive, although in some peer contexts aggressive behavior is popular (Coie & Jacobs, 1993). Rejected children appear to process social information in maladaptive ways, for example, making attributions of hostile intent that could lead to negative defensive behaviors or preemptive strikes against peers (Coie & Dodge, 1998; Dodge, 1986). Recent theories about children with ADHD plus aggressive behavior suggest that problems in self-regulation of attention and emotion may contribute to the social problems of these children (Barkley, 1996; Hinshaw & Melnick, 1995).

Developmental theorists have argued that peer relations have roots in family relationships, and there is good evidence to support this view (Elicker, Englund, & Sroufe, 1992; Patterson, 1986; Patterson et al., 1992; Sroufe, Egeland, & Carlson, in press). Much less attention has been given to the bidirectional influence of peers and family on the development of social competence. Parental influence on achievement and prosocial conduct, for example, may be contingent on the nature of an adolescent's crowd affiliation. Brown and Huang (1995) found that positive parenting influences were constrained by the adolescent's affiliation with deviant peers. In con-

trast, given a prosocial or neutral crowd, good parenting was strongly related to achievement and prosocial behavior. Their findings point to the importance of efforts by parents or intervention programs to steer children toward prosocial peers earlier in childhood.

Peer social competence also illustrates how children can influence their own development by the choices they make. Prosocial children tend to choose peers who have prosocial influences, and aggressive children tend to choose peers who exacerbate their negative behavior. Friendship can be viewed as a "gateway to the rest of the world" (Newcomb, Bukowski, & Bagwell, in press), in that a child's understanding of the world and connectedness to larger social networks will be influenced by friendship choices.

Recent thinking about peer relations reflects the possibility that peers may serve a protective role in development (Collins & Laursen, in press; Hartup, 1996). Having friends, for example, may help a child adjust to a new classroom or school. Studies of kindergartners (Ladd, 1990; Ladd, Kochenderfer, & Coleman, 1996) and the junior-high transition (Berndt, 1989) suggest that having friends is associated with positive attitude changes toward school or peers. Thus, friends may provide emotional support. They may also support academic achievement as discussed below. At the same time, however, friends may encourage deviant behavior (Cairns, Cairns, Neckerman, Gest, & Gariepy, 1988; Dishion, Patterson, Stoolmiller, & Skinner, 1991; Newcomb et al., in press). Antisocial children usually develop friendships with other antisocial children that serve to escalate antisocial behavior (Coie & Dodge, 1998; Dishion, Andrews, & Crosby, 1995). Intervention programs need to recognize the complexity of roles that peers may play in development. Encouraging children to become part of prosocial peer groups or to develop friendships with rule-abiding and socially competent children may be good intervention strategies; however, interventions that group deviant peers together may well be counterproductive.

Socially Appropriate Conduct

One of the most important criteria by which children are evaluated by adults in their society is by their conduct with respect to rules or social norms for behavior, including the rules parents have for behavior, the expectations teachers have for conduct in the classroom and on the playground, and the laws of society governing conduct. Children are described as well-behaved rather than disobedient, antisocial, or delinquent according to their compliance with these norms for social behavior.

Much of the research in this area has focused on negative behavior (aggression, delinquency) rather than rule-abiding behavior. Aggressive behavior and broader antisocial behavior patterns show considerable stability over time from childhood through adolescence into the adult years (Coie & Dodge, 1998; Loeber, 1982; Olweus, 1979). In one of few studies examining a bipolar dimension of rule-abiding versus rule-breaking conduct, Masten et al. (1995) found this domain of competence to be

highly stable over a 10-year interval, even with the nature of the rule-breaking behaviors changing. Moreover, antisocial behavior appeared to undermine academic and job competence. On a more positive note, if behavior improved, there was no evidence of lasting consequences of conduct problems in childhood.

The connection between academic achievement and rule-governed behavior is strong, and there is great interest in why this is so (Hinshaw, 1992; Maguin & Loeber, 1996; Masten & Coatsworth, 1995). Parenting quality, IQ, and attentional functioning all have been linked to both areas of competence and may play a role in how they become connected in development. For example, self-regulation problems could interfere with both learning and conduct. Academic failure could produce anger, distress, or disengagement that could lead to disruptive behavior or drifting to deviant peer groups. Alternatively, antisocial behaviors could interfere with learning, acceptance by teachers and peers, or result in academic placements with fewer opportunities for learning or affiliation with competent peers. For older children and adolescents, the preponderance of data supports a conduct-to-academic direction of influence more than the reverse (Loeber & Stouthamer-Loeber, 1987; Masten et al., 1995), although academic success does predict desistance from delinquency (Maguin & Loeber, 1996). For younger children, academic problems may play a larger role in the development of conduct problems (Hinshaw, 1992), which suggests the possibility that early tutoring programs could produce improvements in behavior as well as in reading skills.

Both intellectual functioning and parenting behavior have been strongly implicated in the development of rule-governed conduct. Studies of resilience also point to the significance of good parenting quality in preventing antisocial problems among children exposed to high levels of psychosocial adversity (Masten, 1994). In the United States, parents who are warm but structured with consistent rules and high expectations for behavior, often described as authoritative in style, have children with better conduct as well as better social competence with peers and academic achievement (Maccoby, 1980; Grusec & Lytton, 1988). Antisocial children often have a history of harsh, punitive, rejecting, inconsistent parenting (Coie & Dodge, 1998; Loeber, 1990).

Antisocial children and also criminal adults have been found to have lower intellectual functioning, and children who make it out of high-risk environments often have strong intellectual skills (Masten, 1994). One way better intellectual functioning may result in better competence is through facilitating academic achievement in elementary school. Children who succeed in school may be more likely to adopt and willingly comply with social norms and to find their way into prosocial peer groups (Catalano & Hawkins, 1996).

Once again, research points to the importance of three adaptive systems in the development of competence: parenting, self-regulation skills, and cognitive functioning. These resources also predict school success.

Academic Achievement

One of the most prominent social contexts for child development is the school. Academic achievement, as indicated by grades and test scores, years in school, and whether a student has dropped out of school are gauges of an individual's success in adapting to this developmental context. Typically, children with more individual resources and social capital (Coleman, 1988) fare best in school.

Individual resources associated with academic success include cognitive abilities, motivation, and beliefs. IQ is one of the most powerful predictors of academic success. Yet academic competence also is influenced by beliefs and attitudes about school (Stevenson, Chen, & Lee, 1993; Stevenson & Stigler, 1992), self-perceptions about one's academic abilities (Harter, 1982; Greene & Miller, 1996), and motivations to succeed or attributional style (Henderson & Dweck, 1990). Successful students typically attribute their successes to hard work and their failings to lack of effort. Students who maintain a belief that ability and performance are fixed tend to have lower achievement (Stipek & Gralinski, 1996) in comparison to children who believe that performance is a function of effort and hard work (Stevenson et al., 1993).

Problems in academic achievement have been linked with problems of self-regulation related to attention and impulsive behavior as well as with antisocial behavior (Hinshaw, 1992; Maguin & Loeber, 1996; Masten & Coatsworth, 1995). Children with higher rates of behavior problems also tend to drop out of school more frequently than children without behavior problems (Cairns, Cairns, & Neckerman, 1989; Ensminger & Slusarcick, 1992), even after controlling for academic achievement (Wehlage & Rutter, 1986).

Social resources associated with academic competence include school, family, and peer systems. Schools that effectively promote academic achievement share many characteristics, including a clear mission, capable and high-quality instruction, attention to staff development, and careful monitoring of student progress (Levine & Lezotte, 1990; Mortimore, 1995; Newmann, Wehlage, & Lamborn, 1992; Sylva, 1994).

Family factors associated with academic competence include parenting styles and parental involvement. Authoritative parenting (i.e., warm, firm, high expectations) has been associated with academic success from early childhood through adolescence across sex and socioeconomic status (Baumrind, 1978; Dornbusch, Ritter, Leiderman, Roberts, & Fraleigh, 1987; Steinberg, Darling, Fletcher, Brown, & Dornbusch, 1995). However, cultural and other contextual factors may be important. European and Hispanic American adolescents appear to benefit more from this type of parenting than African American or Asian American adolescents (Steinberg, Mounts, Lamborn, & Dornbusch, 1991; see also Florsheim, Tolan, & Gorman-Smith, 1996). Moreover, dangerous environments may require stricter parenting to produce competent children (Baldwin, Baldwin, & Cole, 1990).

Parental involvement in education is also related to a child's academic achievement (Booth & Dunn, 1996; Ryan, Adams, Gullotta, Weissberg, & Hampton, 1995), and short-term longitudinal evidence suggests that increasing parental involvement leads to academic improvements (Steinberg, Lamborn, Dornbusch, & Darling, 1992). Parents influence the development of academic achievement through direct involvement with schools, for example, when they contact school about their child or attend parent–school functions (Steinberg, 1996). They also affect achievement through their attitudes and behavior, for example, by communicating strong educational values (Marjoribanks, 1987), conveying the value of effort (Stevenson et al., 1993), expecting and encouraging their children to succeed academically (Reynolds & Wahlberg, 1991), and monitoring or helping with their child's schoolwork at home (Clark, 1993; Scott-Jones, 1995). The apparent significance of parents' behavior and their beliefs in their children's school success has led intervention programs to target parental involvement as a key to improving academic success in children.

Peers may also influence academic achievement either positively or negatively (Epstein, 1983), and for some children and adolescents, the peer group may be a more powerful determinant of their school competence than their parents (Steinberg, 1996). High-achieving peers can influence satisfaction with school, expectations, grades, and test scores (Epstein, 1983; Mounts & Steinberg, 1995). Moreover, the parents of academically competent peers also reinforce achievement, providing an ecological network of peers and adults that support educational achievement. Thus, research suggests that there may be a place for peer-based interventions to promote competence that take advantage of the influence that high-achieving peers and their parents can exert on academic competence but that are cautiously aware that there can also be negative influences when peers are not achievement oriented.

Emerging Research Domains: Work and Activities

Experience in the work domain and involvement in activities are widely viewed as important indicators that things are going smoothly for American children, particularly in adolescence. College applications, for example, often request evidence of such competence.

Developing competence in the workplace during adolescence is one signal of the emerging transition to adult roles. Work experiences can provide an opportunity for adolescents to develop a sense of efficacy and self-confidence and to acquire the skills and abilities required for successful transition to adulthood (Mortimer & Finch, 1996). A large panel study of high-school students indicated that adolescent work experiences may enhance a sense of competence, promote adolescent well-being, and strengthen adolescent–parent relationships (Finch, Shanahan, Mortimer, & Ryu, 1991; Mortimer & Shanahan, 1994). However, too much work, particularly in stressful, dead-end jobs, is associated with worse academic

achievement (Greenberger & Steinberg, 1986; Mortimer & Finch, 1996; Steinberg & Dornbush, 1991), misconduct (Steinberg & Dornbusch, 1991), and the use of tobacco, alcohol, or other substances (Bachman & Schulenberg, 1993; Greenberger & Steinberg, 1986).

There has been less attention to the origins of competence in the work domain. In one study, job competence in late adolescence was significantly predicted by academic achievement, conduct, and social competence earlier in development (Masten et al., 1995). Successful transitions to the adult world of work have also received scant attention in the developmental literature, although this is an issue of considerable importance for public policy (William T. Grant Foundation Commission on Work, Family and Citizenship, 1988).

The significance of extracurricular activities as a competence domain also has been a neglected area of study. Little is known about involvement in extracurricular activities and what roles it may play in development. Limited evidence indicates some benefits, such as lower rates of dropping out of school (Mahoney & Cairns, 1997) and more positive engagement in school (Braddock, Royster, Winfield, & Hawkins, 1991; Nettles, 1991). Theoretically, extracurricular involvement should have positive socializing effects on participants, and some evidence supports this contention (Eder, 1985; Eder & Parker, 1987; Mahoney, 1994; Mahoney & Cairns, 1997). Involvement in extracurricular activities may foster and showcase individual talents, thereby contributing to an individual's global sense of competence, efficacy, esteem, and well-being. Such activities may also serve to facilitate involvement in conventional social networks, which could then promote achievement or rule-abiding conduct (Csikszentmihalyi, Rathunde, & Whalen, 1993; McNeal, 1995). However, there could be risks, and long-term effects are still in question (Eccles & Barber, 1995; Winfield, 1995). The significance of extracurricular activities for competence development needs further exploration, particularly to test the popular belief that such involvement can function as a protective factor for high-risk youth by connecting them in more positive ways to school, positive adults, or positive peer groups, or by engendering self-efficacy.

Resilience in Children at Risk

Over the past 25 years, initially a small number of pioneers and later many investigators have tried to understand the development of competence when conditions are unfavorable or highly adverse (Masten, in press-b). Resilience has been studied in a wide variety of situations throughout the world, including war, living with parents who have a severe mental illness, family violence, poverty, natural disasters, and in situations with many other risk factors and stressors (Garmezy, 1985; Haggerty, Sherrod, Garmezy, & Rutter, 1994; Luthar & Zigler, 1991; Masten, Best, & Garmezy, 1990; Rutter, 1990; Werner & Smith, 1982, 1992; Wright & Masten, 1997; Zimmerman & Arunkumar, 1994). Results of these studies have been remarkably consistent in pointing to qualities

Table 2
Characteristics of Resilient Children and Adolescents

Source	Characteristic
Individual	Good intellectual functioning
	Appealing, sociable, easygoing disposition
	Self-efficacy, self-confidence, high self-esteem
	Talents
	Faith
Family	Close relationship to caring parent figure
	Authoritative parenting: warmth, structure, high expectations
	Socioeconomic advantages
	Connections to extended supportive family networks
Extrafamilial context	Bonds to prosocial adults outside the family
	Connections to prosocial organizations
	Attending effective schools

of child and environment that are associated in many studies with competence or better psychosocial functioning during or following adverse experiences. These are listed Table 2. Among these qualities, the two most widely reported predictors of resilience appear to be relationships with caring prosocial adults and good intellectual functioning.

Clearly, this list has a familiar ring; these assets are associated with competence in normal development. Resilient children do not appear to possess mysterious or unique qualities; rather, they have retained or secured important resources representing basic protective systems in human development. In other words, it appears that competence develops in the midst of adversity when, despite the situation at hand, fundamental systems that generally foster competence in development are operating to protect the child or counteract the threats to development. These systems appear to have enough redundancy and power to sustain reasonably good development under adversity, unless crucial adaptational systems are severely hampered or damaged, or the adversity exceeds the capacity of anyone to cope.

Thus, for example, a close bond with an effective parent is related to better outcomes among children with ordinary lives as well as among children who face the threats of marital discord (Rutter, 1990), child maltreatment (National Research Council, 1993b), homelessness (Miliotis, 1996), or multifaceted high risk (Werner & Smith, 1982). Similarly, when there is severe trauma exposure related to war or natural disasters, proximity to the caregiver is one of the most powerful predictors of child response (Garmezy & Masten, 1994; Wright, Masten, Northwood, & Hubbard, in press). These

findings reflect the basic reality that caregivers and the attachment relationships that develop between caregivers and children are fundamental to human adaptation and development. Through the processes of evolution, parenting has been shaped to protect development; nature has created in ordinary parents a powerful protective system for child development.

The data linking IQ or good problem-solving skills to better outcomes among children at risk appear to reflect the central importance of cognition and language to adaptation in human development. IQ may be a broad indicator that brain development and associated cognitive development are proceeding normally despite adversity. If an adversity hinders cognitive development (through deprivation or brain damage), then the consequences should be much more serious and long-lasting than for an adversity that does not affect the major cognitive systems.

Among the most intriguing findings about IQ is the possibility that intellectual functioning operates as a moderator of risk for prosocial/antisocial behavior. IQ is not simply related to better outcomes in general; it appears to have specific protective or vulnerability roles in the processes linking adversity to social conduct (Kandel et al., 1988; Kolvin, Miller, Fleeting, & Kolvin, 1988; Masten et al., in press; J. L. White, Moffitt, & Silva, 1989). In very adverse rearing environments, good intellectual skills appear to be very important for development. There could be a multitude of reasons. Good IQ test performance requires a variety of information-processing skills that may also be useful for coping with adversity. More intelligent children may solve problems or protect themselves better; they may attract the interest of teachers; they may have better self-regulation skills that help them function at school and avoid behavior problems. Or, inversely, children with worse than average intellectual skills may find it difficult to negotiate threatening situations, disengage from school because of feelings of failure, or fail to learn as much from their experiences.

Cautionary Notes From Resilience Research

It should be emphasized that the characteristics listed in Table 2 are only known to be associated with resilience and are not necessarily causal influences. These attributes, in fact, could be consequences of success rather than causes of it. This distinction is critical for intervention, because to effect change, one must in some way manipulate a causal process.

The dangers of mistaking correlation for cause can be illustrated by the attribute of high self-esteem, which is often (though not always) associated with resilience as well as with competence. Efforts to boost self-esteem to improve competence will not work if self-esteem is the result of competence rather than a cause of it. One could end up with a group of misbehaving children who think very highly of themselves. There is evidence, for example, that aggressive boys view themselves in an unrealistically favorable light; their high self-esteem appears to be a risk factor (Hughes, Cavell, & Grossman, 1997).

It is also important to remember that these characteristics may not be adaptive in all situations. For example, an easygoing temperament (low reactivity and high sociability) often has been observed among resilient young children (e.g., Werner & Smith, 1982). However, in a widely cited study of Masai infants, babies who would be viewed by most Americans as difficult had better survival rates during a drought in Africa (de Vries, 1984).

Research on resilience also reminds us that children have different vulnerabilities and protective systems at different ages and points in development (Masten et al., 1990). Infants, because of their total dependence on caregivers, are highly vulnerable to the consequences of lost or damaged parents or mistreatment by caregivers. At the same time, infants are protected from experiencing some of the worst atrocities of war or the significance of major disasters by their lack of understanding of what is happening. Adolescents, on the other hand, have much more advanced capabilities for adaptation in the world on their own, but they also are vulnerable to the experiences of loss or devastation concerning friends, faith, schools, and governments, and what these mean for their future, which would be well beyond the understanding of young children.

As the literature on resilience has grown, questions and controversies have arisen. One of the most interesting questions to emerge is whether children pay a price for achieving competence under adversity in terms of psychological distress. Luthar (1991; Luthar, Doernberger, & Zigler, 1993), in her studies of inner-city adolescents, has found that young adolescents living in seriously threatening situations who are highly competent by external criteria (e.g., grades, conduct) have high levels of internal distress. Reports about adolescent survivors of the holocaust in Cambodia who now live in the United States, all of whom are arguably resilient given the massive trauma they have experienced, suggest long-term consequences of severe, repeated trauma in the form of post-traumatic stress disorder symptoms and depression (see Wright et al., in press). However, other studies have not found evidence of distress in groups of resilient adolescents (Masten et al., in press; Neighbors, Forehand, & McVicar, 1993). It remains an important question for future research whether, and under what conditions, children carry forward long-term consequences of adversity despite manifest competence and whether it is a sign for concern.

Questions also have been raised about the utility of global approaches to resilience (Cicchetti, Rogosch, Lynch, & Holt, 1993; Glantz, Johnson, & Huffman, in press; Luthar, 1991; Luthar et al., 1993). Investigators are beginning to take a more fine-grained approach, which is probably more conducive to figuring out protective processes underlying competence in specific situations (Masten, in press-b). For example, good parenting has numerous components, and what good parents do will depend on child characteristics as well as the situation. The expectations and structure provided by parents may be particularly important for academic success, whereas

their warmth and emotional support may be important for social competence, and a good balance of the two may be important for the development of good conduct, which in turn influences academic and social success (Ramirez, 1997). The exact nature of what parents do will change with development and will reflect context. Thus, parents in a dangerous neighborhood will monitor their children more closely than the same parents would in a safer area. Interventions focused on parenting must take such complexities into account.

Efforts to understand resilience have made it clear that children typically have multiple risk factors and multiple resources contributing to their lives. Investigators who started out studying a single risk factor such as premature birth or divorce soon realized that risk rarely comes in single packages or isolated instances of time. Rather, children's lives are often loaded with many risks and recurring stressors. Thus, it is unlikely that a "magic bullet" for prevention or intervention will be found. Intervention models emerging from this realization describe *cumulative protection* efforts to address cumulative risk processes (Coie et al., 1993; Masten & Wright, in press; Yoshikawa, 1994).

Interventions designed to foster better development in children at risk may offer the best test of theories about resilience, if they are conceptually designed and carefully evaluated. Given the high likelihood of multiple risks occurring in a child's life, prevention and intervention programs will probably be more effective if they target multiple risks for elimination or amelioration and boost multiple assets and protective factors (Coie et al., 1993; Masten, in press-a, in press-b). However, it is also important to conduct smaller scale, highly focused interventions to find out quickly whether a probable protective factor can be manipulated to change child development outcomes.

Strategies for Intervention Based on Resilience

The resilience literature suggests that there are several key strategies to consider in prevention–intervention design: (a) risk-focused, (b) resource-focused, and (c) process-focused. Risk factors can be eliminated or prevented, such as when prenatal care prevents premature birth or low birth weight. Similarly, stressors can be averted, for example, by efforts to reduce unnecessary stress in the transition to secondary school (a goal behind the middle-school movement) or by a housing program that prevents homelessness. Once risks or stressors have occurred, efforts can be made to reduce their impact, such as support provided to a child following bereavement or a traumatic experience. Resources can be added to a child's life (or access to resources can be improved) to counterbalance risk. The Search Institute programs for building assets for youth in communities offer an example of this strategy (Benson, Galbraith, & Espeland, 1995). Finally, it will be important to tap into the adaptational systems that appear to be strongly tied to competence, such as attachment, self-efficacy, and self-regulation. Efforts to improve parent–child relationships or to foster mentoring relationships (e.g., Big Brothers, Big Sisters), efforts by teachers or others to build self-efficacy in a child through success experiences or to help a child develop his or her talents, and programs to open doors to new opportunities are all examples of process-oriented strategies.

Prevention Science: Promoting the Development of Competence

Resilience studies have focused on understanding naturally occurring phenomena. Studies of prevention and intervention represent efforts to learn from deliberate attempts to alter the course of development, and they can provide a field test of theories about development and resilience (Cicchetti & Toth, 1992; Coie et al., 1993; Institute of Medicine, 1994; Kellam & Rebok, 1992; Masten, in press-a). The risk-focused, resource-focused, and process-focused strategies implicated by the resilience literature are congruent with the primary models guiding preventive interventions, often termed risk-reduction and competence-promotion models (Cowen, 1985). Some investigators have called for integrating these models by simultaneously programming to prevent dysfunction or to reduce risk and to promote psychological health and well-being (Cowen, 1973, 1980).

Over the years, competence-promotion programs have changed in nature and scope. First-generation efforts were guided by child-focused definitions of competence and emphasized building singular or core sets of skills. Targeted skills were identified in empirical work linking their absence to behavior problems or their presence to positive adaptation. Programs to teach interpersonal problem-solving skills (Spivack & Shure, 1974), assertiveness training (Rotheram-Borus, 1988), and resistance skills and life skills (e.g., Botvin & Tortu, 1988) are exemplars of the skills-building approach to competence promotion. Evaluations of such programs supported developmental models of competence by indicating skills could be changed. However, the consequences for adjustment were small in magnitude.

Second-generation competence-enhancement programs shifted in focus and scope to more developmental, ecological, and multicausal models. These models were more complex, trained a wider variety of more elaborate skills over longer periods of time, linked the teaching of skills to developmental trends, and attended to the various developmental contexts for competence. Two promising examples of this approach are the Social Development Project conducted in elementary schools of New Haven, Connecticut (Weissberg, Caplan, & Harwood, 1991), and the Seattle Social Development Project (Hawkins et al., 1992).

Early childhood education programs, such as Head Start, provide additional examples of preventive interventions with a competence focus. These programs have combined high-quality preschool training for children with early family-support services in an effort to promote social, emotional, motivational, intellectual, and physical development in children of poverty (Zigler & Valentine,

1979). Early intervention programs, such as the Perry Preschool Project with low-income African American families (Berrueta-Clement, Schweinhart, Barnett, Epstein, & Weikart, 1984), the Houston Parent–Child Development Center Program with low-income Mexican American families (Johnson, 1988), the Syracuse Family Development Research Project (Lally, Mangione, Honig, & Wittner, 1988), and the Yale Child Welfare Project (Seitz, Rosenbaum, & Apfel, 1985), targeted children's cognitive and social competence as well as parenting behaviors, family interactions, and social support. Results from these studies indicate that enhancing cognitive and social competence in children and changing patterns of interactions in the family can have long-term cumulative protective effects (Yoshikawa, 1994; Zigler, Taussig, & Black, 1992), resulting in prevention of antisocial behavior and delinquency.

These prevention projects support the view that effective programs focus on both competence enhancement as well as problem reduction. They also provide global evidence that changing the course of development is possible. However, we still lack data on specific effects: That is, if one manipulates a particular protective factor in the child or in the environment, then what particular changes are likely to occur? More importantly, we have little understanding of the processes by which change or protection occurs. Parenting, attention regulation, and peer affiliations all appear to influence the course of antisocial development, and interventions have been designed to alter their effects, but the processes involved are undoubtedly different, although perhaps interrelated. Moreover, the timing of greatest influence may well differ, and thus the timing of preventive efforts would need to differ.

Prevention has great potential to alter the odds of favorable development in children and simultaneously to test our beliefs about what makes a difference. The full potential of intervention, however, will not be realized until there is better integration of what we know about the normal development of competence, the development of psychopathology, and resilience.

Conclusion

Studies of competence, resilience, and intervention converge to suggest that there are powerful adaptive systems that foster and protect the development of competence in both favorable and unfavorable environments. These systems are manifested in the quality of parent–child attachment relationships, cognition, and self-regulation. Children who do well have adults who care for them, brains that are developing normally, and, as they grow older, the ability to manage their own attention, emotions, and behavior. These adaptive systems also enhance each other in the course of development. Undoubtedly, there are other protective processes that promote competence, but these three sets of processes clearly play a central role in multiple domains of competence. Poverty, chronic stress, domestic violence, natural disasters, and other high-risk contexts for child development may have lasting effects when they damage or impair these crucial

adaptive systems; effective preventive interventions may work by bolstering or restoring these systems.

Time and again, research points to the importance of parent–child relationships as a crucial context for the development of competence, both for children with ordinary lives and for children facing extraordinary challenges. In U.S. society, the combination of warm, structured child-rearing practices in parents with reasonably high expectations for competence is strongly tied to success in multiple domains and to resilience among children at risk. In extremely dangerous environments, effective parents are likely to be more strict but remain warm and caring. When a parent like this is not available in a child's life, competence is often linked to a surrogate caregiving figure who serves a mentoring role. When adversity is high and no effective adult is connected to a child, risk for maladaptation is high. The development of competence requires the involvement of caring, competent adults in a child's life; ensuring that every child has this fundamental protective system is a policy imperative.

A second broad and salient predictor of competence is good cognitive development or intellectual functioning. Perhaps because of the complexity of human brain development and functioning, processes underlying the connection of good cognitive skills to competence are not entirely clear. Nonetheless, generally good cognitive skills predict not only academic achievement but other aspects of competence as well, such as rule-abiding behavior. It is possible that self-regulation skills account for some of the power of IQ scores to predict competence and resilience. Children who have trouble directing their attention or controlling their impulses may not do well on IQ tests or in the classroom or may not learn to comply with rules as readily or get along well with peers. On the other hand, children with good cognitive skills may be better equipped to handle the cognitive load inherent in adverse situations. In any case, policies and programs to protect and foster good cognitive development are essential for building human capital.

Self-regulation of attention, emotion, and behavior comprise a third major set of adaptation skills implicated as central to the development of competence across domains and modifiable through experience, particularly in early development. Moreover, good parent–child relationships serve as scaffolds for building these skills. Intervening early to encourage self-regulation may be an important strategy for future interventions, although we need to know more about these processes to inform such efforts.

Studies of competence, psychopathology, and resilience all point to the importance of establishing a good start early in development. Children who enter school with significant problems in self-regulation, who are distrustful of adults, or who have impaired learning abilities have a substantial disadvantage for meeting the developmental tasks of middle childhood.

Cascading effects are also suggested by the literature highlighted here. Children who have good internal and external resources tend to get off to a good start in

school, become connected to normative peers, maintain positive self-perceptions, and face the developmental tasks of adolescence with the advantages represented by success in these domains. Children who enter school with few resources, cognitive difficulties, and self-regulatory problems often have academic problems, get into trouble with teachers, are more likely to be rejected by peers, and are at risk for disengaging from normative school and peer contexts, which sets them up for considerable difficulty in the transition to adolescence.

Prevention at its best represents both an effort to foster competence and to prevent problems. Intervention can be conceptualized as a protective process by which one deliberately attempts to steer development in more favorable directions. Increasingly, interventions are designed on the basis of research on competence and resilience as well as on psychopathology. Experimental evaluations of interventions designed on the basis of theory and research represent a powerful strategy for testing causal hypotheses, which will serve to improve our theories and also to fine-tune preventive intervention programs. It is in the common interest of society and science that evaluations of well-designed interventions go forward.

The study of competence and resilience offers hope and guidance for those who seek to improve the odds of good developmental outcomes through policy and prevention. Children do make it in spite of adversity, and research on efforts to reduce risk, boost resources, and facilitate protective processes is encouraging. At the same time, there is growing respect for the complexity of the processes that influence the course of human development and the challenge of implementing change in the dynamic systems in which children develop.

Future studies undoubtedly will advance our understanding of the many possible pathways to competence. Rapid growth in our knowledge about brain development will contribute to our understanding of competence processes, as will advances in the knowledge of how self-regulation systems develop. The role of culture in the development of competence is also receiving greater and much-needed attention. Longitudinal studies should help us determine how trauma and adversity may alter the course of development and what kind of protective systems are needed to prevent long-term negative consequences of trauma exposure or to promote recovery. Multidisciplinary research will make it possible to integrate biological, psychological, anthropological, and sociological perspectives on adaptation in development.

Research has illuminated the lives of successful children in times of growing concern about the effects of poverty, homelessness, maltreatment, domestic and community violence, educational failure, and teenage pregnancy. Successful children remind us that children grow up in multiple contexts—in families, schools, peer groups, baseball teams, religious organizations, and many other groups—and each context is a potential source of protective factors as well as risks. These children demonstrate that children are protected not only by

the self-righting nature of development, but also by the actions of adults, by their own actions, by the nurturing of their assets, by opportunities to succeed, and by the experience of success. The behavior of adults often plays a critical role in childrens' risks, resources, opportunities, and resilience. Development is biased toward competence, but there is no such thing as an invulnerable child. If we allow the prevalence of known risk factors for development to rise while resources for children fall, we can expect the competence of individual children and the human capital of the nation to suffer.

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